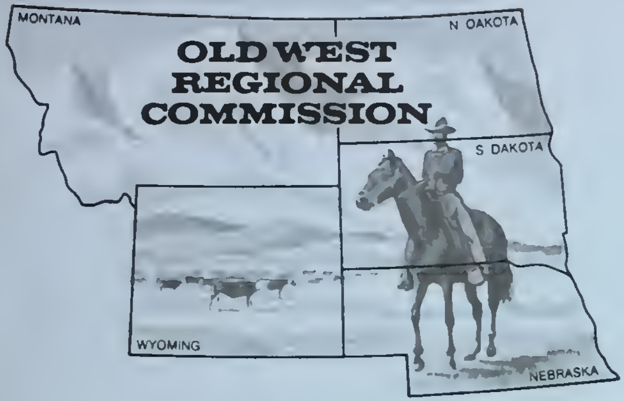
S Energy Research
333.805 Information System
O7eris quarterly report
V.2, No.3

ENERGY RESEARCH INFORMATION SYSTEM

Projects Report

Vol. 2, No. 3
November 1977

Project Nos. 00000892 through 00001080



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A Program of:

Old West Regional Commission
Billings, Montana

in cooperation with

Bureau of Land Management,

EMRIA Program

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BUREAU OF LAND MANAGEMENT

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ENERGY RESEARCH INFORMATION SYSTEM

PROJECTS REPORT

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

Vol. 2, No. 3

Old West Regional Commission

and

USDI, Bureau of Land Management, EMRIA

Billings, Montana

November, 1977

PREPARED BY

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Old West Regional Commission
Hedden-Empire Building, Suite 228
Billings, Montana 59101

IN COOPERATION WITH

U.S. Bureau of Land Management, EMRIA Program

TABLE OF CONTENTS

Introduction i

Reporting Form iii

1.0 Coal 1
- 1.1 General 1
- 1.2 Reclamation 4
- 1.3 Water Resources 7
- 1.4 Atmospheric and Bioenvironmental Studies 12
- 1.5 Social and Economic Studies 21
- 1.6 Energy Conversion and Transport 31
- 1.7 Mining and Extraction Methodology 36
- 1.9 Other 38

2.0 Petroleum, Natural Gas, and Oilshale 39

3.0 Renewable Energy Resources 42
- 3.1 General 42
- 3.2 Solar Energy 45
- 3.3 Wind Energy 62
- 3.4 Geothermal Energy 67
- 3.5 Hydropower 71
- 3.6 Other 72

4.0 Nuclear Energy 80

5.0 Other Mined Resources 81

6.0 Energy Conservation/Consumer Aspects 84

7.0 Land Use 85

8.0 Other 86

TABLE OF CONTENTS

(Indexes)

Location Index 89
Personal Name Index 91
Organization Index 104
Subject Index 112

INTRODUCTION

The Energy Research Information System (ERIS) is a service administered by the Old West Regional Commission in response to the need for current information on research activities in the Region's rapidly growing and changing field of energy. Cooperating with the Commission on ERIS is the U.S. Bureau of Land Management, EMRIA program (Energy Minerals Rehabilitation Inventory and Analysis).

The purpose of ERIS is to compile and make available to the energy research users of the Region an up-to-date inventory of ongoing and recently completed energy-related research projects. By providing researchers with a means of communication with other researchers and allowing government and policy decision-makers access to Regional energy research, ERIS aims to improve communication channels among energy research users. Use of the system can be an aid in conducting research assessments, avoiding duplication, and pinpointing areas of additional research need.

ERIS Scope

The term "energy-related" covers a broad spectrum of activities and encompasses a large volume of research. Nonetheless, ERIS attempts to report energy-related research projects in as comprehensive a manner as possible. This includes reclamation, energy conversion, and land use research, socioeconomic impact and alternate energy resource studies, as well as programs related to energy development which do not necessarily involve research. The geographic focus of ERIS is upon research conducted in the Old West Region states - Montana, Nebraska, North Dakota, South Dakota and Wyoming.

The compilation of energy research projects in the ERIS reports has been accomplished by combining ERIS's own information-gathering efforts with those of other clearinghouses - most notably, Oak Ridge National Laboratory's *Inventory of Current Energy Research and Development,* the Smithsonian Science Information Exchange, the Montana Energy Office, North Dakota Regional Environmental Assessment Program, and the other various energy agencies of the states of the Old West Region.

Use of the Energy Research Information System

ERIS Reports

ERIS information is stored in a computerized data base. As the data base grows, periodic reports are printed which list the latest contents of the data base. The first such report was issued in November, 1975.

Access to ERIS information is available through subject-oriented chapters and through the indexes located at the end of the reports. These indexes are: Location, Personal Name, Organization, and Subject. Instructions for the use of the indexes precede each section. The indexes are cumulated annually.

The diagram on the following page further describes how ERIS is organized.

Computer Search Service

The holdings of ERIS are computerized, allowing for flexibility in conducting special searches of the data base. The computer search service is offered as a complement to the ERIS reports. If your inquiry concerning energy research cannot be answered by manual use of the reports, contact a member of the ERIS staff and request that a special search be conducted.

Please direct your inquiries to: ERIS, Old West Regional Commission, 228 Hedden-Empire Bldg., Billings, Mt 59101. 406-657-6665 (commercial) or 585-6665 (FTS).

* * * * * * * * *

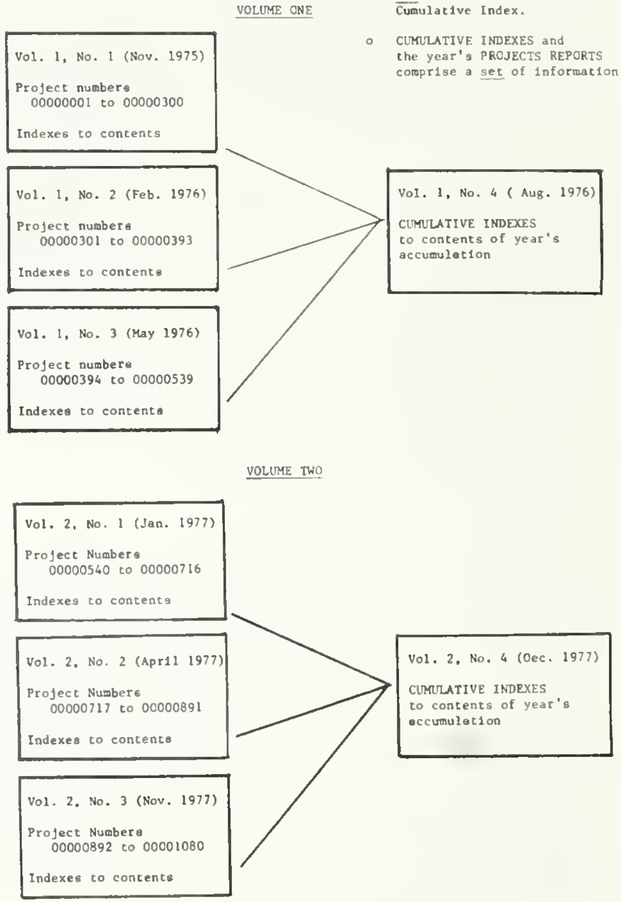
The Old West Regional Commission is a Federal-State partnership designed to address regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of eight such commissions in the United States.

The EMRIA program is administered by the U.S. Bureau of Land Management under the Department of the Interior. The purpose of EMRIA is to determine the reclamation potential for lands disturbed by removal of energy minerals and the post-mining effects on surface and groundwater within the basin of disturbance. Chemical and physical data are collected through EMRIA studies in cooperation with the Bureau of Reclamation, Geological Survey, Soil Conservation Service, state agencies, and from coordination with private companies.

HOW ERIS IS ORGANIZED

- PROJECTS REPORTS (formerly called Quarterly Reports) contain descriptions of energy research in the Old West Region.
- Each REPORT is indexed according to Location, Name, Organization, and Subject.

- CUMULATIVE INDEXES are provided once a year to incorporate previous indexes of the year's PROJECTS REPORTS under one cover.
- Project descriptions are not included with the Cumulative Index.
- CUMULATIVE INDEXES and the year's PROJECTS REPORTS comprise a set of information.


VOLUME ONE
Vol. 1, No. 1 (Nov. 1975)
Project numbers 00000001 to 00000300
Indexes to contents
Vol. 1, No. 2 (Feb. 1976)
Project numbers 00000301 to 00000393
Indexes to contents
Vol. 1, No. 3 (May 1976)
Project numbers 00000394 to 00000539
Indexes to contents
Vol. 1, No. 4 (Aug. 1976)
CUMULATIVE INDEXES to contents of year's accumulation
VOLUME TWO
Vol. 2, No. 1 (Jan. 1977)
Project Numbers 00000540 to 00000716
Indexes to contents
Vol. 2, No. 2 (April 1977)
Project Numbers 00000717 to 00000891
Indexes to contents
Vol. 2, No. 3 (Nov. 1977)
Project Numbers 00000892 to 00001080
Indexes to contents
Vol. 2, No. 4 (Dec. 1977)
CUMULATIVE INDEXES to contents of year's accumulation

REPORTING FORM
ENERGY RESEARCH INFORMATION SYSTEM
Old West Regional Commission

INSTRUCTIONS: Please complete the relevant categories of the Reporting Form for each energy-related project currently being conducted or recently completed by your organization in the States of the Old West Region. If an umbrella project covers several separate studies, fill out a form for each one, as well as for the umbrella project. If you want any of the information you provide to be omitted from ERIS publications, make a note of this in Category 17, "Special instructions for Proprietary Information."

In order to assist us in assigning keywords for computer access to your research information, we ask that you circle the most descriptive words and phrases of the Title and Abstract. If necessary, add additional terms of your own choosing.

If you are amending previously submitted information, please note this on the Reporting Form.

PLEASE RETURN COMPLETED REPORTING FORM(S) TO: ERIS, OLD WEST REGIONAL COMMISSION, 228 HEDDEN-EMPIRE BLDG., BILLINGS, MT 59101. PHONE: (406) 657-6665 (Commercial) or 585-6665 (FTS).

1. Date prepared ____________________ Respondent ____________________

   Check one: ________Original Information ________Amendment to ERIS Project No.______

2. **PROJECT/PROGRAM TITLE** (circle keywords) ____________________

   ____

   ____

3. **PROJECT NUMBER** (descriptive no. used by your organization) ____________________

4. **PRINCIPAL INVESTIGATOR** (include organization name and address)

   INVESTIGATOR____________________PHONE NO.__________

   ORGANIZATION ____________________

   ADDRESS ____________________

   ____

   OTHER INVESTIGATORS:

   ____

   ____

5. **RESEARCH INSTITUTION** (institution/organization where or through which research is performed if different than 4 above)

   ORGANIZATION ____________________PHONE NO.__________

   ADDRESS ____________________

   ____

6. **COOPERATOR(S)** (organization(s) which provides time and/or resources toward the project but does not conduct, supervise, or fund the research)

ORGANIZATION ____________________

PROJECT MONITOR ____________________ PHONE NO. __________

ADDRESS ____________________

____

7. **PRIMARY SPONSOR** (organization which provides funds)

ORGANIZATION ____________________

PROJECT MONITOR ____________________ PHONE NO. __________

ADDRESS ____________________

____

8. **OTHER SPONSORS** (provide names of organizations which provide secondary funds)

____

____

____

9-10. **FUNDING AMOUNTS**

Type of accounting period: __________ Calendar year __________ Fiscal Year

Enter the **TOTALS** from each sponsor in the appropriate blanks. If the breakdown is known, enter the yearly amounts in the appropriate blanks.

Organizations from 7 and 8 above	197___	197___	197___	Total
(Primary) __________	$ ______	$ ______	$ ______	$ ______
(Other) __________	$ ______	$ ______	$ ______	$ ______
__________	$ ______	$ ______	$ ______	$ ______
__________	$ ______	$ ______	$ ______	$ ______
Total Funding				$ ______

11. **TIME FRAME:** Starting Date ________________ Ending Date ________________
mo. day yr. mo. day yr.

12. **ACTUAL COMPLETION DATE** (leave blank if not completed) ________________
mo. day yr.

13. **LOCATION:** States and Counties; other location information — Region, River Basin, Cities, Township/Range/Section, etc.

STATES AND COUNTIES ________________________

OTHER LOCATION INFORMATION ________________________

14. **ABSTRACT:** Problem, Objectives, and Approach (in free form, 100-200 words)
PLEASE CIRCLE KEYWORDS AND PHRASES. Add other descriptors if necessary.

14-A. **NUMBER OF FULL TIME EMPLOYEES** and graduate students, excluding clerical personnel. If several people work part time, add the fractions of their time spent on the project and round off to the nearest whole number.

Years	Scientists & Engineers	Graduate Students	Totals
197___			
197___			
197___			

15. **REPORTS AND PUBLICATIONS** (title, authors, report number, date, issuing agency)

16. **AVAILABILITY OF REPORTS AND PUBLICATIONS** (indicate organization and mailing address where reports can be obtained; also indicate cost and order number if appropriate)

17. **SPECIAL INSTRUCTIONS FOR PROPRIETARY INFORMATION** (enter category number and information which you desire to be omitted from published material)

18. **A. TYPE OF STUDY OR PROGRAM**
(check all that apply)

1) ☐ Basic research

2) ☐ Applied research

3) ☐ Demonstration project or program not involving research (eg, a community technical assistance program)

4) Environmental Impact Statement

5) ☐ Other____________________

B. TYPE OF DATA COLLECTED
(check all that apply)

1) ☐ Primary data sources
   a. ☐ Field study

   b. ☐ Lab. study

   c. ☐ Both of the above

2) ☐ Secondary data sources

3) ☐ Both 1 and 2 above

C. **PROJECT AFFILIATION** (check one of the following)

1) ☐ The study described on this Reporting Form is an umbrella project or program. It encompasses two (2) or more separate studies which are subcontracted and/or of differing subject content. Please provide Reporting Forms for the separate projects or incorporate them onto this Reporting Form.

2) ☐ The study described on this Reporting Form is a part of an umbrella project or program. Please provide umbrella project name and overall coordinating organization below.

____

____

3) ☐ The study is a separate project or program in and of itself.

THANK YOU FOR COMPLETING THIS REPORTING FORM.

r.12/77

ENERGY RESEARCH INFORMATION SYSTEM

00000892

PROJECT TITLE

MONTANA ENVIRONMENTAL QUALITY COUNCIL ENERGY POLICY STUDY

INVESTIGATORS

DANA H. MARTIN / THOMAS W. FRIZZELL / RICHARD BOURKE

RESEARCH INSTITUTION

MONTANA ENVIRONMENTAL QUALITY COUNCIL / STATE CAPITOL / HELENA, MT 59601

PRIMARY SPONSOR

FORD FOUNDATION / NEW YORK, NY 10017

SECONDARY SPONSORS

MONTANA ENVIRONMENTAL QUALITY COUNCIL / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

75,000

TIME FRAME

JAN. 1973 TO JUNE 1975

LOCATION

MT

ABSTRACT

THE ENVIRONMENTAL QUALITY COUNCIL'S MONTANA ENERGY POLICY STUDY IS DESIGNED TO PROVIDE DATA AND POLICY RECOMMENDATIONS TO ASSIST MONTANA LEGISLATORS IN DEVELOPING A STATE ENERGY POLICY. THE FIRST THREE PARTS OF THE STUDY TRACE THE CAUSES OF THE ENERGY CRISIS, EXAMINE CURRENT ENERGY SUPPLY AND DEMAND DATA, ANALYZE THE MAJOR STUDIES INVESTIGATING THE PROBLEM, AND SUGGEST SOME DECISIONS MONTANA OUGHT TO CONSIDER.

THE PRINCIPAL FINDING OF THE STUDY IS THAT MONTANA MUST TAKE IMMEDIATE ACTION IF IT IS TO PROTECT MUCH OF ITS LONG-RANGE AGRICULTURAL BASE, ITS ECONOMIC STABILITY, ITS ENVIRONMENTAL QUALITY, AND ITS UNIQUE WAY OF LIFE. IN THE ABSENCE OF MONTANA ACTING TO DETERMINE ITS OWN DESTINY, THE STATE'S FUTURE WILL BE DICTATED BY THE FEDERAL GOVERNMENT AND THE ENERGY CONGLOMERATES WHOSE ACTIONS, IF HISTORY IS ANY GUIDE, WILL BE BASED UPON EXPEDIENCE AND PROFIT MAXIMIZATION AND MAY NOT COINCIDE WITH WHAT IS BEST FOR MONTANA. (MEO)

REPORTS AND PUBLICATIONS

DANA H. MARTIN ET AL. 'MONTANA ENERGY POLICY STUDY.' MONTANA ENVIRONMENTAL QUALITY COUNCIL. FINAL REPORT, REVISED EDITION. JUNE, 1975.

ooooo

00000893

PROJECT TITLE

POPLAR RIVER BASIN STUDY

INVESTIGATORS

RONALD J. SCHLEYER

RESEARCH INSTITUTION

MONTANA ENVIRONMENTAL QUALITY COUNCIL / STATE CAPITOL / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA ENVIRONMENTAL QUALITY COUNCIL

TIME FRAME

SEPT. 1976 TO OCT. 1976

LOCATION

MT

ABSTRACT

THIS STUDY REVIEWED THE IMPACTS ON NORTHEASTERN MONTANA OF THE COAL-CONVERSION DEVELOPMENTS OF THE SASKATCHEWAN POWER CORPORATION. ON SEPTEMBER 11, 1974, THE PROVINCE OF SASKATCHEWAN ANNOUNCED PLANS FOR THE FIRST STAGE OF A 1,200-MILLION WATT COAL-FIRED ELECTRIC POWER COMPLEX TO BE ERECTED IN SOUTHERN SASKATCHEWAN NEAR THE INTERNATIONAL BORDER WITH MONTANA. A STRIP MINE, DAM AND RESERVOIR FOR COOLING WATER AND THE FIRST OF FOUR 300-MILLION WATT GENERATING STATIONS WERE TO BE BUILT IN THE HEADWATERS DRAINAGE OF THE EAST FORK OF THE POPLAR RIVER. THIS STUDY CONCERNS ITSELF WITH THE PEOPLE, LAND AND ECONOMY OF THE POPLAR RIVER BASIN, WATER RIGHTS ISSUES, INDUSTRIAL AND AGRICULTURAL DEVELOPMENT, THE BOUNDARY WATER'S TREATY, AND MONTANA ENVIRONMENTAL DEGRADATION FROM THE PROPOSED DEVELOPMENT. (MEO)

REPORTS AND PUBLICATIONS

RONALD J. SCHLEYER. 'THE TRANSBOUNDARY EFFECT: SAFEGUARDING THE POPLAR RIVER IN MONTANA.' ENVIRONMENTAL QUALITY COUNCIL STAFF REPORT. OCTOBER, 1976. (OUT OF PRINT)

ooooo

00000894

PROJECT TITLE

PACIFIC NORTHWEST ENERGY-RELATED REGIONAL ASSESSMENT PROGRAM

INVESTIGATORS

J. B. BURNHAM / W. H. SWIFT / D. W. FRALEY / J. J. JACOBSEN / W. T. HINDS / M. L. WARNER / M. E. OLSEN

RESEARCH INSTITUTION

U.S. ERDA, BATTELLE PACIFIC NW LAB. / BOX 999 / BATTELLE BLVD. / RICHLAND, WA 99352

PRIMARY SPONSOR

U.S. ERDA, DIV. OF BIOMEDICAL & ENVIRONMENTAL RESEARCH

PRIMARY FUNDING AMOUNT

1,000,000

TIME FRAME

JULY 1975 TO APR. 1978

LOCATION

AK, ID, OR, MT WA, WY. (A SMALL PART OF THE TOTAL

RESEARCH EFFORT USES POWDER RIVER BASIN DATA FOR METHODOLOGY DEVELOPMENT.)

ABSTRACT

THE BATTELLE-PACIFIC NORTHWEST LABORATORIES IS CONDUCTING A MULTI-YEAR PROGRAM DIRECTED TOWARDS ASSESSING THE LONG-TERM ENVIRONMENTAL, SOCIOECONOMIC, AND HEALTH EFFECTS OF PROBABLE AND POSSIBLE ENERGY-RELATED DEVELOPMENTS IN THE NORTHWEST STATES (AK, ID, OR, MT ,WA, WY). THE WORK IS INTENDED TO DEVELOP A BETTER UNDERSTANDING OF THE REGIONAL IMPLICATIONS OF NATIONAL POLICIES, TECHNOLOGY DEVELOPMENT ACTIVITIES, AND ACTIONS AS WELL AS THOSE OF STATE AND REGIONALLY DEVELOPED PROGRAMS AND POLICIES. AFTER CONSIDERATION OF A VARIETY OF APPROACHES TO INTEGRATED ASSESSMENT AT A REGIONAL LEVEL, BATTELLE PACIFIC NORTHWEST LABORATORIES HAS CONCLUDED THAT DYNAMIC SIMULATION TECHNIQUES PROVIDE THE BEST AVAILABLE APPROACH TO EVALUATING THE ISSUES PERTINENT TO THE NORTHWEST. AS A RESULT, THE PACIFIC NORTHWEST REGIONAL ASSESSMENT PROGRAM HAS BEEN STRUCTURED IN A FRAMEWORK INVOLVING TEN SECTORS. EACH OF THESE SECTORS INVOLVE THEIR OWN SUBMODELS THAT RECEIVE INFORMATION EITHER FROM OUTSIDE THE MODEL AS EXOGENOUS INPUTS OR FROM OTHER SECTOR SUBMODELS. THE TEN SECTORS ARE: ENERGY, ECONOMIC, DEMOGRAPHIC, AIR RESOURCES, WATER RESOURCES, LAND RESOURCES, SOCIAL IMPACTS, PSYCHOLOGICAL IMPACTS, HEALTH, AND BIOPRODUCTIVITY.

IN ADDITION TO THE SEVERAL SECTORS OF THE DYNAMIC SIMULATION MODEL, A FINAL TASK HAS AS ITS MAIN OBJECTIVE THE IDENTIFICATION AND ANALYSIS OF MAJOR INSTITUTIONAL CONSTRAINTS TO ENERGY DEVELOPMENT IN THE PACIFIC NORTHWEST REGION. INITIAL APPLICATION OF THE ANALYTICAL FRAMEWORK WILL BE TO THE INTERLABORATORY COOPERATIVE PROGRAM ON THE NATIONAL COAL UTILIZATION ASSESSMENT BEING CONDUCTED BY ERDA'S NATIONAL LABORATORIES. (MEO)

STUDY AFFILIATION

THIS PROJECT IS PART OF 'NATIONAL COAL UTILIZATION PROGRAM.' U.S. ERDA.

REPORTS AND PUBLICATIONS

SPECIFIC RESULTS OF THE ASSESSMENT ACTIVITIES ARE COVERED IN A SERIES OF ANNUAL AND TOPICAL REPORTS.

*****

00000895

PROJECT TITLE

SITE SUITABILITY STUDY OF GLASGOW AIR FORCE BASE AS AN ENERGY PARK

INVESTIGATORS

DON BRELSFORD

RESEARCH INSTITUTION

MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST. / BOX 3809 / BUTTE, MT 59701

PRIMARY SPONSOR

OLD WEST REGIONAL COMMISSION / GORDON E. HOVEN / BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT

1,090,422

TIME FRAME

APR. 1977 TO JULY 1978

LOCATION

MT - VALLEY CO.; GLASGOW AFB

ABSTRACT

MERDI WILL STUDY THE FEASIBILITY OF AN ENERGY DEVELOMENT CENTER AND ANALYZE THE ENVIRONMENTAL IMPACT OF SITING ENERGY FACILITIES AT GLASGOW AIR FORCE BASE (GAFB), MONTANA. THE PROJECT WILL FOCUS ON CONVENTIONAL ENERGY-PRODUCING FACILITIES AS WELL AS THE USE OF 'SOFT' TECHNOLOGIES--SOLAR AND WIND. A COMPLETE, DYNAMIC ENERGY-ECONOMIC COMPUTER MODEL OF MONTANA WILL BE DEVELOPED TO GIVE A PREDICTION OF THE NEEDS OF MONTANA'S PRIMARY, SECONDARY, GOVERNMENTAL, AND HOUSEHOLD SECTORS. ALSO, ENERGY EFFECTS AND CAPITAL CONSTRAINTS WILL BE INCLUDED WHICH DESCRIBE HOW CHANGING ENERGY POLICIES AND PRICES AFFECT THESE SECTORS. THE BASELINE CHARACTERISTICS AND ENVIRONMENTAL CONDITIONS OF THE AREA WILL BE ESTABLISHED BASED ON THE FOLLOWING CRITERIA: WILDLIFE, VEGETATION, WATER QUALITY AND AQUATIC ECOLOGY, AND METEOROLOGY. TO ACCOMPLISH THIS TASK, FIELD RESEARCH WILL BE CONDUCTED FOR ONE YEAR, AND A METEOROLOGICAL TOWER WILL BE INSTALLED AND OPERATED. (MEO)

*****

00000896

PROJECT TITLE

1976 WYOMING ELECTION YEAR SURVEY

INVESTIGATORS

KENYON N. GRIFFIN / K. L. BAKER / OLIVER WALTER

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF POLITICAL SCIENCE, CENTER FOR GOVERNMENT RESEARCH / LARAMIE, WY 82071

COOPERATOR

UNIV. OF WYOMING, INSTITUTE FOR POLICY RESEARCH

PRIMARY SPONSOR

UNIV. OF WYOMING / LARAMIE, WY 82071

PRIMARY FUNDING AMOUNT

4,000

TIME FRAME

SEPT. 1977 TO CONTINUING

LOCATION

WY

ABSTRACT

THE CENTER FOR GOVERNMENT RESEARCH, UNDER THE AUSPICES OF THE INSTITUTE FOR POLICY RESEARCH AT THE UNIVERSITY

OF WYOMING, CONDUCTED ITS **THIRD** WYOMING ELECTION YEAR SURVEY IN 1976. NEARLY 1,000 PERSONS FROM ACROSS THE STATE WERE PERSONALLY INTERVIEWED DURING THE THREE WEEKS PRIOR TO THE NOVEMBER ELECTION AND, FOLLOWING THE ELECTION, WERE CALLED BACK FOR INFORMATION ON THEIR VOTING BEHAVIOR. IN THE PRE-ELECTION INTERVIEW A WIDE VARIETY OF QUESTIONS WERE ASKED ABOUT THE RESPONDENTS' ATTITUDES ON PUBLIC POLICY ISSUES, PERCEPTIONS OF POLITICAL CANDIDATES (STATE AND NATIONAL), THEIR POLITICAL ATTITUDES, FEELINGS ABOUT TAXES (EMPHASIS ON ENERGY-RELATED TAXES) AND PUBLIC SERVICES AS WELL AS DEMOGRAPHIC CHARACTERISTICS. THE POST-ELECTION TELEPHONE INTERVIEW ASKED WHETHER THE RESPONDENTS VOTED, FOR WHOM THEY VOTED IN THE PRESIDENTIAL, SENATORIAL AND CONGRESSIONAL ELECTIONS AND HOW THEY VOTED ON THE TAX ISSUES WHICH WERE ON THE BALLOT. THIS REPORT SUMMARIZES FINDINGS ON ENERGY-RELATED ISSUES, TAX ATTITUDES AND PUBLIC SERVICES, PUBLIC EMPLOYEE BARGAINING AND SUPPORT FOR POLITICAL CANDIDATES AND OFFICIALS IN WYOMING.

REPORTS AND PUBLICATIONS

KENYON N. GRIFFIN. 'PULBIC POLICY ISSUES - 1976.' UNIV. OF WYOMING, DEPT. OF POLITICAL SCIENCE, CENTER FOR GOVERNMENT RESEARCH, LARAMIE, WY 82071. $2.50.

*****

00000897

PROJECT TITLE

POLICY MODULES FOR ENVIRONMENTAL MANAGEMENT

PROJECT NUMBER

43-8362

INVESTIGATORS

RALPH C. D'ARGE

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF ECONOMICS / LARAMIE, WY 82071

PRIMARY SPONSOR

NATIONAL SCIENCE FOUNDATION, DIV. ADV. EN. RESOURCES RES. / WASHINGTON, D.C.

PRIMARY FUNDING AMOUNT

149,900

TIME FRAME

AUG. 1976 TO NOV. 1977

LOCATION

WY GX

ABSTRACT

ENVIRONMENTAL RESOURCES HAVE SPECIAL FEATURES MAKING THEM DISTINCT FROM OTHER NATURAL RESOURCES AS WELL AS OTHER ECONOMIC GOODS AND SERVICES. IF THESE FEATURES ARE IGNORED, ENVIRONMENTAL RESOURCE DECISIONS CAN BE NON-OPTIMAL IN NATURE AND HIGHLY INEFFICIENT. THESE FEATURES INCLUDE: COMMON POOL PROBLEMS; STOCK AND RESOURCE UNCERTAINTY; FUTURE DEMAND UNCERTAINTY; UNCERTAINTY ON TECHNOLOGICAL SUBSTITUTES; OWNERSHIP PATTERNS; DISCREPANCIES BETWEEN PRIVATE AND SOCIAL RATES OF DISCOUNT; INCENTIVES FOR EXPLOITATION AND GENERAL DISCREPANCIES BETWEEN MARGINAL SOCIAL AND PRIVATE COSTS. MORE THAN 200 EXISTING ECONOMIC MODELS DESCRIBING OPTIMAL PRICE AND USE RATES FOR NATURAL RESOURCES HAVE BEEN GENERATED. WITHOUT A SYNTHESIS THIS LITERATURE, ALTHOUGH ADDRESSING AN EXTREMELY RELEVANT POLICY ISSUE, HAS BEEN VIRTUALLY UNTAPPED BY POLICYMAKERS BECAUSE OF ITS DIFFUSENESS AND COMPLEXITY. IT IS THE PURPOSE OF THIS RESEARCH TO EXTEND, GENERALIZE, SIMPLIFY, AND SYNTHESIZE THIS EXISTING SET OF ENVIRONMENTAL RESOURCE MODELS. THE RESULTS OF THIS AUGMENTIVE AND TAXONOMIC PROCESSES WILL BE UTILIZED TO DEVELOP A POLICY HANDBOOK ACCESSIBLE AND UNDERSTANDABLE TO DECISION-MAKERS WHICH WILL PROVIDE GUIDELINES AND OPTIMAL RULES FOR EFFICIENTLY MANAGING ENVIRONMENTAL RESOURCES THROUGH DIRECT AND INDIRECT CONTROLS. WORK ELEMENTS INCLUDE A SERIES OF COMMISSIONED PAPERS, A MAJOR CONFERENCE, THE DEVELOPMENT OF POLICY MODELS, AND REGIONAL SEMINARS.

* * *

00000898
PROJECT TITLE
OVERBURDEN TRANSFORMATIONS AND DEVELOPMENT OF A RECLAMATION PLANNING SYSTEM
PROJECT NUMBER
G&C 771
INVESTIGATORS
DR. DONALD R. REICHMUTH / MICHAEL HARLOW (MONTANA STATE UNIV.)
DR. ED BURROUGHS (U.S. FOREST SERVICE)
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF CIVIL ENG. / BOZEMAN, MT 59715
COORDINATOR
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION / OGDEN, UT
PRIMARY SPONSOR
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING / BILLINGS, MT 59102
PRIMARY FUNDING AMOUNT
160,000
TIME FRAME
FEB. 1976 TO JUNE 1979
LOCATION
MT ND WY
ABSTRACT

THE PROJECT HAS TWO OBJECTIVES: (1) DEVELOP COMPUTER-ASSISTED TECHNIQUES TO ASSESS AND PREPLAN MOVEMENT AND PLACEMENT OF OVERBURDEN SO AS TO ACHIEVE OPTIMAL RECLAMATION; (2) ASSIST IE/CS DEPARTMENT IN DEVELOPMENT OF A COMPUTER-BASED RECLAMATION PLANNING SYSTEM. THE RPS WILL INCLUDE PROGRAMS FOR ASSESSMENT OF OVERBURDEN AND COAL RESOURCES, FOR SIMULATION OF MINING AND REGRADING, AND FOR PREDICTION OF RESULTANT MASS STABILITY, SUB-SURFACE HYDROLOGY, AND SOIL CHARACTERISTICS RELATED TO REVEGETATION SUCCESS FOR PRE-PLANNED LAND USES. ASSOCIATED RESEARCH IS ASSESSING EROSION OF SPOILANTS, ROAD NETWORK IMPACTS, AND LAND SUBSIDENCE AFTER MINING AND REGRADING. THE RPS WILL INTEGRATE THIS EFFORT AND RELATED WORK (IN THE BIOLOGICAL/AGRONOMIC REALMS) INTO A COMPREHENSIVE PLANNING AND DESIGN PACKAGE. (MEO)

REPORTS AND PUBLICATIONS
D. R. REICHMUTH, M. G. HARLOW. SEAM RECLAMATION PLANNING: A PRELIMINARY RESOURCES GEOMETRY MODEL AND A PROGRAM FOR MASS STABILITY ANALYSIS OF ALTERNATIVE RECLAMATION LANDSCAPES. 1976.

* * *

00000899
PROJECT TITLE
SELECTIVE REPLACEMENT OF COAL STRIP MINE OVERBURDEN IN MONTANA
PROJECT NUMBER
H0262032
INVESTIGATORS
D. J. DOLLHOPF / W. D. HALL / C. A. CULL / R. L. HODDER
RESEARCH INSTITUTION
MONTANA STATE UNIV., AG. EXP. STATION / BOZEMAN, MT 59715
COORDINATOR
MONTANA POWER CO.
LONG CONSTRUCTION CO.
PRIMARY SPONSOR
U.S. BUREAU OF MINES. SPOKANE MINING RESEARCH CENTER / EAST 315 MONTGOMERY AVENUE / SPOKANE, WA 99207
PRIMARY FUNDING AMOUNT
665,134
TIME FRAME
JUNE 1976 TO JUNE 1979
LOCATION
MT - ROSEBUD CO.: ROSEBUD MINE: COLSTRIP
ABSTRACT

INVESTIGATE THE MEANS OF RE-ESTABLISHING NONPOLLUTED, HYDROLOGIC SYSTEMS IN AREAS INFLUENCED BY SURFACE ACTIVITIES WHICH WERE FOUND TO CONTAIN CONCENTRATIONS OF SALTS AND HEAVY METALS. OVERBURDEN CHEMISTRY DISTRIBUTION PATTERNS WERE INTENSIVELY DETERMINED ON A 60-METER GRID BASIS IN 1.5-METER DEPTH INCREMENTS WITH SAMPLES COLLECTED FROM THE BLAST HOLE DRILLING. ON-SITE PHYSICAL AND CHEMICAL ANALYSES WERE PERFORMED IN A MOBILE SOIL LABORATORY. THE 26,000 ANALYSES THUS PERFORMED DELINEATED NUMEROUS ZONES OF CHEMISTRY CONSIDERED INIMICAL FOR SUCCESSFUL RECLAMATION. OBSERVATION WELLS WERE INSTALLED TO MONITOR THE OVERBURDEN, ROSEBUD COAL, AND MCKAY COAL GROUND-WATER SYSTEMS. DATA FROM THE INSTALLATIONS WERE USED TO ESTIMATE POST-RECLAMATION WATER LEVELS AND THE RECHARGE AND WATER MOVEMENT CHARACTERISTICS IN THE VICINITY. DEMONSTRATION OF SELECTIVE OVERBURDEN HANDLING TECHNIQUES WAS COMPLETED USING ON-SITE MINE EQUIPMENT. THE DEMONSTRATION INCLUDED: 1. CASTING SPOIL IN NORMAL SIDECASTING PROCEDURES; 2. SEGREGATION AND BURIAL OF INIMICAL MATERIALS WITHOUT CLAY CAP; AND 3. SEGREGATION AND BURIAL OF INIMICAL MATERIALS COVERED BY A RELATIVELY IMPERMEABLE 1.0-METER THICK CLAY CAP.

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00000900

PROJECT TITLE

DETERMINATION OF THE CAUSES OF DIFFERENTIAL SUBSIDENCE IN RECLAIMED STRIP-MINE SPOILS

PROJECT NUMBER

J0275010

INVESTIGATORS

GERALD GROENEWOLD

RESEARCH INSTITUTION

NORTH DAKOTA GEOLOGICAL SURVEY / UNIVERSITY STATION / GRAND FORKS, ND 58202

PRIMARY SPONSOR

U.S. BUREAU OF MINES / BLDG. 20, DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY FUNDING AMOUNT

51,000

TIME FRAME

APR. 1977 TU MAR. 1979

LOCATION

NO - MERCER CO.; INDIAN HEAD MINE; ZAP

ABSTRACT

THE STUDY INVOLVES DETAILED MONITORING OF THE SURFACE CONFIGURATION AND GROUNDWATER FLOW IN A 40 ACRE SITE. BASELINE DATA INCLUDING THE SEQUENCE OF MINING ACTIVITIES, ORIGINAL CHARACTER OF THE OVERBURDEN, TIME OF YEAR DURING WHICH RECONTOURING AND MINING OCCURRED, AND VARIATIONS IN RECONTOURING PROCEDURES USED IN THE AREA WERE COLLECTED PRIOR TO MONITORING THE SITE. THE SITE WILL BE MONITORED PERIODICALLY FOR TWO YEARS. SUBSIDENCE CHARACTERISTICS WILL THEN BE COMPARED TO PHYSICAL, PROCEDURAL, AND GROUNDWATER FLOW VARIABLES WITHIN THE SPOILS MATERIALS.

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00000901

PROJECT TITLE

QUALITY OF LEACH WATER FROM MONTANA COAL MINE SPOILS

PROJECT NUMBER

G&C 828

INVESTIGATORS

KENNETH L. TEMPLE

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF MICROBIOLOGY / BOZEMAN, MT 59715

PRIMARY SPONSOR

U.S. EPA

PRIMARY FUNDING AMOUNT

13,000

TIME FRAME

JULY 1975 TO JULY 1976

LOCATION

MT

ABSTRACT

TO SURVEY OVERBURDEN CORE SAMPLES FROM EASTERN MONTANA COAL FIELDS WITH REFERENCE TO THE TOXICITY OF LEACHATES FROM THESE CORE SAMPLES. IN PARTICULAR, TO INVESTIGATE MICROBIALLY CATALYZED LEACHING. (MEO)

STUDY AFFILIATION

PART OF 'TOXIC EFFECTS ON THE AQUATIC BIOTA FROM COAL AND OILSHALE DEVELOPMENT,' U.S EPA, SERIAL NUMBER 00000121, FRIS QUARTERLY REPORT, VOLUME 1, NO. 1, NOVEMBER, 1975.

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00000902

PROJECT TITLE

TRACE METAL ANALYSIS IN SOILS

PROJECT NUMBER

R-803797

INVESTIGATORS

RAY WOODRIFF / AHMED MUBARAK

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF CHEMISTRY / BOZEMAN, MT

PRIMARY SPONSOR

U.S. EPA

PRIMARY FUNDING AMOUNT

19,329

TIME FRAME

SEPT. 1975 TO JUNE 1977

LOCATION

WY ND MT

ABSTRACT

IN ORDER TO FURNISH MAXIMUM INFORMATION FOR THE EVALUATION OF THE PROBABLE IMPACT OF STRIP MINING ON THE STUDY AREA, IT IS IMPORTANT TO HAVE THE CHEMICAL COMPOSITION OF THE STRATA TO BE DISTURBED, AND THE AVAILABILITY OF BOTH NUTRIENTS AND HARMFUL ELEMENTS IN THIS MATERIAL. THIS RESEARCH GROUP AT MONTANA STATE UNIVERSITY HAS BEEN STUDYING A SYSTEM OF SEPARATING SOIL SOLUTIONS FROM THE SOIL WITHOUT APPRECIABLY CHANGING THE CONCENTRATIONS OF THE VARIOUS ELEMENTS IN THE SOIL SOLUTIONS. THIS TECHNIQUE CONSISTS OF CENTRIFUGING THE NATURAL SOIL OR POTENTIAL SOIL WITH CARBON TETRACHLORIDE OR OTHER INERT EMISSABLE DENSE LIQUIDS. THE WATER, BEING LIGHTER THAN THE SUPPORT LIQUID, IS DRIVEN TO THE TOP BY CENTRIFUGAL FORCE, LEAVING THE CARBON TETRACHLORIDE BETWEEN THE WATER AND THE SOIL. THE WATER IS PIPETTED INTO A SMALL GRAPHITE CUP, EVAPORATED, AND THE CUP INSERTED INTO A CONSTANT TEMPERATURE

GRAPHITE TUBE FURNACE. THE ABSORPTION OF THE VAPOR PRODUCED IS MEASURED WITH A SPECTROPHOTOMETER. WORK HAS STARTED ON THE APPLICATION OF THIS TECHNIQUE TO THE PROBLEMS THAT WILL BE INVOLVED IN EVALUATING THE IMPACT OF STRIP MINING ON THE AREA. THIS WORK WILL BE CARRIED OUT IN COOPERATION WITH PEOPLE WORKING ON OTHER METHODS OF EXTRACTING SIGNIFICANT ELEMENTS FROM SOIL OR POTENTIAL SOIL MATERIALS. THE RESULTS OF THIS STUDY SHOULD NOT ONLY PROVIDE THE BASIS FOR EVALUATING THE POTENTIAL IMPACT OF STRIP MINING ON THE STUDY AREA, BUT SHOULD ALSO PROVIDE THE INVESTIGATORS OF FUTURE AREAS WITH BETTER AND MORE PRECISE EVALUATION TECHNIQUES. (MEO)

REPORTS AND PUBLICATIONS

IMMISCIBLE DISPLACEMENT OF THE SOIL SOLUTION BY CENTRIFUGATION
AN IMPROVED TECHNIGUE FOR MEASURING SOIL PH.
AN IMPROVED TECHNIGUE FOR MEASURING IN SITU SALINTIY OF SOILS.
AVAILABLE FROM DR. RAY WOODRIFF; MONTANA STATE UNIV.,
DEPT. OF CHEMISTRY; BOZEMAN, MT 59715.

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00000903

PROJECT TITLE

INTERNATIONAL CONGRESS FOR ENERGY AND THE ECOSYSTEM: ECONOMICS, ECOLOGY, AND PLANNING OF COAL RESOURCE DEVELOPMENT

PROJECT NUMBER

G0274008

INVESTIGATORS

MOHAN K. WALI

RESEARCH INSTITUTION

UNIV. OF NORTH DAKOTA, INTERNATIONAL CONGRESS HEADQUARTERS
BOX 8122 UNIV. STATION / GRAND FORKS, ND 58202

PRIMARY SPONSOR

UNIV. OF NORTH DAKOTA, INTERNATIONAL CONGRESS / BOX 8122
UNIV. STATION / GRAND FORKS, ND 58202

SECONDARY SPONSORS

U.S. BUREAU OF MINES
UNIV. OF ARIZONA

PRIMARY FUNDING AMOUNT

27,000

SECONDARY FUNDING AMOUNTS

25,000

TIME FRAME

JUNE 12, 1978 TO JUNE 16, 1978

LOCATION

GX

ABSTRACT

THE CONGRESS HAS BEEN DESIGNED TO FILL THE VOID IN COMMUNICATION OF SURFACE COAL MINING RECLAMATION PROBLEMS. REPRESENTATIVES FROM INTERNATIONAL SURFACE COAL MINING EFFORTS WILL DISCUSS 3 MAJOR TOPICS IN CONCURRENT SESSIONS: PLANNING: 1. LOGISTICS OF PLANNING, A. PROBLEMS FACING INDUSTRY, B. LAW FORMULATION AND ENFORCEMENT PROBLEMS OF GOVERNMENT, C. PLANNING CRITERIA ACCEPTABLE TO ENVIRONMENTALISTS; 2. CRITERIA FOR EXPLORATION, GO-AHEAD/ABANDONMENT BY INDUSTRY; 3. DEVELOPMENT OF MINING BY INDUSTRY; 4. IMPACT STATEMENTS AS SEEN BY INDUSTRY, UNIVERSITIES AND CONSULTING COMPANIES; 5. LEASING OF FEDERAL LANDS BY GOVERNMENT.
ECONOMICS: 1. A SYSTEMS APPROACH TO MINING ECONOMICS WITH SPECIAL REFERENCE TO THE ENVIRONMENT; 2. COST OF DEVELOPING A MINE; 3. POSTMINING COSTS INCLUDING RECLAMATION; 4. LEGISLATIVE PROCESSES AND ECONOMICS; 5. ECONOMICS OF RE-USE OF WATER, FLY ASH, CRUDE GYPSUM AND OTHER BY-PRODUCTS.
ECOLOGY APPROACHES TO RECLAMATION: 1. AGRICULTURAL; 2. RANGE; 3. RECREATIONAL (AESTHETIC); 4. SUCCESSIONAL; 5. URBAN; 6. WILDLIFE; 7. WATERSHED.

00000904

PROJECT TITLE
POPLAR RIVER AQUATIC STUDIES
PROJECT NUMBER
MT 6-99-05455
INVESTIGATORS
PHIL STEWART
RESEARCH INSTITUTION
MONTANA DEPT. OF FISH AND GAME / HELENA, MT 59601
PRIMARY SPONSOR
U.S. EPA
PRIMARY FUNDING AMOUNT
2,500
TIME FRAME
SEPT. 1976 TO FEB. 1977
LOCATION
MT
ABSTRACT

THE SASKATCHEWAN POWER CORPORATION IS PRESENTLY DEVELOPING A COAL-FIRED GENERATION COMPLEX ON THE EAST POPLAR RIVER. CONSTRUCTION OF A COOLING RESERVOIR WAS INITIATED IN 1975 AND IMPOUNDMENT OF RUN-OFF WATER BEGAN IN THE SPRING OF 1976. THIS PROJECT WILL GREATLY REDUCE FLOWS AND ALTER FLOW REGIMENS IN THE EAST POPLAR RIVER. FLOWS IN THE MIDDLE AND WEST POPLAR RIVER MAY ALSO BE AFFECTED IN THE FUTURE, SINCE DIVERSIONS TO THE EAST FORK ARE ANTICIPATED FOR SUPPLEMENTAL WATER. COINCIDENT WITH FLOW REDUCTIONS, SIGNIFICANT DEGRADATION OF WATER QUALITY HAS BEEN FORECAST AS A RESULT OF NATURAL AND FORCED EVAPORATION AT THE EAST POPLAR COOLING RESERVOIR. THIS IS PARTICULARLY SIGNIFICANT, SINCE IT IS BELIEVED THAT CONDITIONS NECESSARY TO MAINTAIN KEY SPORT FISHES ARE PRESENTLY MARGINAL.

FISH POPULATION STUDIES WERE INITIATED AT SEVERAL STATIONS THROUGHOUT THE DRAINAGE IN 1975 TO ACQUIRE BASELINE INFORMATION. SEINING AND ELECTROFISHING WERE CONDUCTED TO DETERMINE INFORMATION ON SPECIES ABUNDANCE AND DISTRIBUTION. OVER 1,000 FISH WERE TAGGED OR MARKED TO DETERMINE POPULATIONS AND MOVEMENT. (MEO)

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00000905

PROJECT TITLE
STUDY OF GROUND WATER RESOURCES OF SHALLOW AQUIFERS IN THE POPLAR RIVER BASIN OF MONTANA
INVESTIGATORS
GEORGE PIKE
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV. / BOX 1696 / HELENA, MT 59601
PRIMARY SPONSOR
U.S. EPA
PRIMARY FUNDING AMOUNT
35,000
TIME FRAME
MAR. 1977 TO CONTINUING
LOCATION
MT - POPLAR RIVER
ABSTRACT

THE MAJOR GOAL OF THIS EFFORT INCLUDES A DETAILED AND RECONNAISSANCE LEVEL HYDROLOGICAL STUDY IN THE POPLAR RIVER AREA OF NORTHEAST MONTANA. THIS STUDY IS NECESSARY SO THAT A THOROUGH UNDERSTANDING MAY BE GAINED OF THE EXTANT SHALLOW GROUND WATER SYSTEM AND THE RELATIONSHIP OF SURFACE WATERS WITH SUCH SYSTEMS. MOREOVER, THE EFFORT WILL SERVE TO ESTABLISH BASELINE QUALITY AND QUANTITY CONDITIONS FOR SUCH SHALLOW GROUND WATERS AND ALSO TO IMPLEMENT A GROUND WATER MONITORING SYSTEM.

IN ORDER TO ACHIEVE THE PRINCIPAL GOALS OF THE EFFORT, SPECIFIC OBJECTIVES AND SUB-OBJECTIVES OF THE STUDY INCLUDE THE FOLLOWING: 1. ESTABLISH BASELINE GROUND WATER CONDITIONS IN DEFINED STUDY AREA(S) PRIOR TO MINING OR POWER GENERATION; 2. DESIGN AND IMPLEMENT A GROUND WATER MONITORING SYSTEM CAPABLE OF DETECTING CHANGES IN THE GROUND WATER SYSTEM ATTRIBUTABLE TO MINING AND POWER GENERATION; 3. ESTABLISH AND MAINTAIN CLOSE COOPERATION WITH CANADIANS PERFORMING GROUND WATER STUDIES IN THE POPLAR RIVER BASIN. (MEO)

STUDY AFFILIATION
PART OF 'POPLAR RIVER STUDY,' U.S. EPA

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00000906

PROJECT TITLE
POPLAR RIVER WATER QUALITY SYSTEMS MODEL
INVESTIGATORS
ABE HORPESTAD
RESEARCH INSTITUTION
MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES, WATER QUALITY BUREAU / HELENA, MT 59601
PRIMARY SPONSOR
U.S. EPA
PRIMARY FUNDING AMOUNT
15,000

TIME FRAME
JAN. 1977 TO CONTINUING
LOCATION
MT - POPLAR RIVER

ABSTRACT
THE BASIC OBJECTIVE OF THE MODELING EFFORT IS THE DEVELOPMENT AND APPLICATION OF A WATER QUALITY SYSTEMS MODEL FOR FLOWING WATERS TO PREDICT THE IMPACTS OF COAL-FIRED POWER GENERATING FACILITIES, SURFACE MINING OF COAL, RESERVOIR CONSTRUCTION AND NON-ENERGY RELATED ACTIVITIES OR NATURAL PROCESSES ON THE QUALITY OF THE POPLAR RIVER AND PRINCIPAL TRIBUTARIES DOWNSTREAM OF THE U.S.-CANADIAN INTERNATIONAL BOUNDARY. DATA INPUTS TO THE MODEL WILL CONSIDER, BUT WILL NOT BE NECESSARILY LIMITED TO THE FOLLOWING CRITERIA: 1. POTENTIAL IMPACTS OF POLLUTANTS ON AQUATIC ECOSYSTEMS; 2. SYNERGISTIC EFFECTS OF POLLUTANTS: 3. CONCENTRATION OF POLLUTANT; 4. INTERRELATIONSHIP OF PARAMETERS BEING MODELED; 5. ADAPTABILITY OF POLLUTANT TO MODELING TECHNIQUES: 6. IMPORTANCE OF PARAMETER AS A POLLUTION INDICATOR: THE MODEL IS TO HAVE THE CAPABILITY TO PREDICT SOURCE-SPECIFIC IMPACTS AS WELL AS COLLECTIVE IMPACTS UNDER A WIDE RANGE OF FLOW CONDITIONS. EMPHASIS WILL BE PLACED ON THE MODELING OF CONSERVATIVE CONSTITUENTS SUCH AS TDS, BORON, SODIUM, SULFATE, ETC. THE MODEL IS TO CONSIDER GROUND WATER INFLOW AND RECHARGE, DEPLETIONS, IRRIGATION RETURN FLOWS, MINE DEWATERING, GROSS NON-POINT PROBLEMS, LAND USE, SOIL TYPE, SOIL MOISTURE HOLDING CAPACITY, STREAM TEMPERATURE DYNAMICS AND GROSS ANALYSIS OF THE RESERVOIR (CORONACH). MODEL OUTPUTS WOULD BE MONTHLY FOR SELECTED POINTS IN THE SYSTEM INCLUDING THE INTERNATIONAL BOUNDARY, THE MOUTHS OF MAJOR TRIBUTARIES, THE POPLAR RIVER ABOVE AND BELOW TRIBUTARIES AND AT THE MOUTH OF THE POPLAR RIVER. (MEO)
STUDY AFFILIATION
PART OF 'POPLAR RIVER STUDY,' U.S. EPA

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00000907
PROJECT TITLE
POPLAR RIVER WATER USE STUDY
INVESTIGATORS
ORRIN FERRIS
RESEARCH INSTITUTION
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, WATER RESOURCES DIV. / 32 S. EWING / HELENA, MT 59601
PRIMARY SPONSOR
U.S. EPA
PRIMARY FUNDING AMOUNT
5,000
TIME FRAME
JAN. 1977 TO DEC. 1977
LOCATION
MT - POPLAR RIVER
ABSTRACT
THE OBJECTIVE OF THIS EFFORT IS TO: 1. INVENTORY THE PRESENT MUNICIPAL, INDUSTRIAL, AND AGRICULTURAL WATER USERS OF THE POPLAR RIVER; 2. QUANTIFY POPLAR RIVER WATER WITHDRAWALS AND RETURNS (INCLUDING AMOUNT AND TIMING); 3. IDENTIFY IRRIGATED LANDS AND POPLAR RIVER WATER DEMANDS INCLUDING CHANGES IN USES, REQUIREMENTS, AND CRITICAL FACTORS AFFECTING USES. (MEO)
STUDY AFFILIATION
PART OF 'POPLAR RIVER STUDY,' U.S. EPA

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00000908
PROJECT TITLE
UPPER FLATHEAD RIVER BASIN STUDY
INVESTIGATORS
HANLEY JENKINS / D. PICKS / J. REHBEIN / B. SCHUMACHER / A. TUDOR / D. NUNNALLE / J. ACORD
RESEARCH INSTITUTION
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, WATER RESOURCES DIV. / 32 S. EWING / HELENA, MT 59601
COORDINATOR
FLATHEAD DRAINAGE APO / KALISPELL, MT 59901
MONTANA DEPT. OF FISH & GAME / HELENA, MT 59601
MONTANA DEPT. OF HEALTH & ENVIRON. SCIENCES / HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION / 32 S. EWING / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
47,500
TIME FRAME
SEPT. 1975 TO JAN. 1977
LOCATION
MT - UPPER FLATHEAD RIVER BASIN ABOVE OUTLET OF FLATHEAD LAKE
ABSTRACT
IN RESPONSE TO HOUSE BILL 622 (MONTANA LEGISLATIVE SESSION, 1975), THIS STUDY WAS DESIGNED TO COMPILE AND ANALYZE ALL BIOPHYSICAL DATA PERTINENT TO THE HYDROLOGY AND LIMNOLOGY OF THE UPPER PORTION OF THE FLATHEAD RIVER DRAINAGE BASIN; ESTIMATE CURRENT ALLOCATIONS AND LEVELS OF NEED FOR WATER RESOURCES OF THIS WATERSHED AND EVALUATE PROBABLE EFFECTS THAT EXISTING WATER USES HAVE UPON THE QUALITY AND QUANTITY OF WATER AS WELL AS THE BIOPHYSICAL EQUILIBRIUM OF THE LAND-STREAM-LAKE SYSTEM; EVALUATE THE PROBABLE IMPACT UPON THIS SYSTEM OF THE DEVELOPMENT OF CANADIAN CABIN CREEK COAL DEPOSITS (CABIN CREEK IS A TRIBUTARY OF THE NORTH FORK FLATHEAD RIVER JUST NORTH OF THE U.S. BORDER IN CANADA) AND THE ATTENDANT URBANIZATION OF THIS HEADWATERS REGION; AND PREPARE A SUMMARY REPORT AND RECOMMENDATIONS FOR THE FUTURE. (MEO)
REPORTS AND PUBLICATIONS
UPPER FLATHEAD RIVER BASIN STUDY. MONTANA DEPT. OF NATURAL

RESOURCES AND CONSERVATION, WATER RESOURCES DIV, HELENA, MT. JANUARY, 1977.

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00000909

PROJECT TITLE

BULL MOUNTAINS HYDROLOGIC RECONNAISSANCE

INVESTIGATORS

WAYNE VAN VOAST / ROBERT HEDGES / MICHAEL NICKLIN

RESEARCH INSTITUTION

MONTANA BUREAU OF MINES & GEOLOGY / 6TH AVE. PLAZA / BILLINGS, MT 59102

COORDINATOR

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.

PRIMARY SPONSOR

U.S. BUREAU OF LAND MANAGEMENT, EMRIA

PRIMARY FUNDING AMOUNT

22,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - MUSSELSHELL CO.

ABSTRACT

THE BLM MANAGES 121,287 ACRES OF SUBSURFACE MINERALS IN THE BULL MOUNTAINS. BECAUSE OF INTEREST IN SUBSURFACE COAL MINING, HYDROLOGICAL STUDIES TO UPGRADE LAND-USE PLANNING WILL BE CONDUCTED. THE STUDY WILL COVER PART OF THE MOUNTAINS SOUTH AND WEST OF ROUNDUP, CONSISTENT WITH A LARGE COAL DEPOSIT BENEATH THE AREA. THE STUDY WILL INCLUDE THE FOLLOWING: 1. INVENTORY OF WELLS AND SPRINGS; 2. WATER QUALITY SAMPLING OF ABOVE; 3. DETERMINATION OF ALTITUDE OF WELLS AND SPRINGS; 4. SUMMARIZATION OF AVAILABLE WATER DATA; 5. COMPILATION AND INTERPRETATION OF DATA. (MEO)

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00000910

PROJECT TITLE

TRANSPORT WATER CONTAMINATION IN COAL-SLURRY PIPELINES

PROJECT NUMBER

G&C 824

INVESTIGATORS

DR. HOWARD S. PEAVY / WILLIAM A. HUNT / P. W. JENNINGS

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF CIVIL ENG. / BOZEMAN, MT 59715

PRIMARY SPONSOR

U.S. EPA

SECONDARY SPONSORS

MONTANA STATE UNIV.

PRIMARY FUNDING AMOUNT

80,000

SECONDARY FUNDING AMOUNTS

4,545

TIME FRAME

JULY 1977 TO JUNE 1978

LOCATION

MT

ABSTRACT

THE PURPOSE OF THIS PROJECT IS TO DETERMINE THE QUANTITY AND TYPE OF POLLUTANTS WHICH MAY BECOME SUSPENDED OR DISSOLVED IN THE WATER USED AS THE TRANSPORT MEDIA IN A COAL SLURRY PIPELINE. ADDITIONALLY, PRELIMINARY ANALYSIS OF APPROPRIATE TREATMENT TECHNIQUES WHICH WILL BE NECESSARY AT THE PIPELINE TERMINUS WILL BE MADE. (MEO)

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00000911

PROJECT TITLE

VIGIL NETWORK ESTABLISHMENT FOR THE REGION OF THE PROPOSED EASTERN MONTANA COAL DEVELOPMENT

INVESTIGATORS

MARK WEBER

RESEARCH INSTITUTION

UNIV. OF MONTANA, DEPT. OF GEOLOGY / MISSOULA, MT 59801

PRIMARY SPONSOR

NATIONAL SCIENCE FOUNDATION, RANN

PRIMARY FUNDING AMOUNT

32,000

TIME FRAME

MAY 1975 TO APR. 1976

LOCATION

MT

ABSTRACT

VIGIL NETWORK ESTABLISHMENT CONSISTS OF MAPPING BOTH PLANIMETRICALLY AND IN CROSS SECTION, REPRESENTATIVE REACHES OF RIVERS; ESTABLISHING PEAK FLOOD GAGES WHERE NOT PRESENT, AND ASSESSING THE PRESENT BIOTIC STATE OF THOSE RIVERS WITH RESPECT TO BENTHIC FAUNA AND STREAMBANK FLORA. IT IS ANTICIPATED THAT ABOUT 50 CAREFULLY CHOSEN VIGIL NETWORK STATIONS SHOULD BE ESTABLISHED FOR THE EASTERN MONTANA COAL REGION TO ALLOW FOR REGIONAL VARIABILITY IN PRECIPITATION FREQUENCY VARIABLES.

A SECOND PHASE OF INVESTIGATION CONSISTING OF PHOTOGEOLOGIC MAPPING SUPPLEMENTED BY DETAILED FIELD INVESTIGATION OF SELECTED WATERSHEDS WILL BE CONDUCTED TO MORE FULLY EVALUATE THE AREA-WIDE, DYNAMIC EQUILIBRIUM-DISEQUILIBRIUM RELATIONSHIPS AS THEY NOW EXIST.

SUCH COLLECTIONS OF BASE HYDROGRAPHIC DATA ARE EXTREMELY USEFUL TO MONITOR AND ASSESS EFFECTS OF LAND USE

CHANGE AND THIS FACTOR MAY BE RELATED, BY REGRESSION ANALYSES, TO EACH COMPONENT OF THAT OVERALL HYDROGRAPHIC CHANGE. (MEO)

STUDY AFFILIATION

THIS IS A SUBPROJECT OF 'AN ASSESSMENT OF THE EFFECTS OF ENERGY DEVELOPMENT IN THE FORT UNION BASIN, MONTANA AND NEIGHBORING STATES,' SERIAL NUMBER 00000153, ERIS QUARTERLY REPORTS, VOLUME 1, NO. 1, NOVEMBER, 1975.

REPORTS AND PUBLICATIONS

PROJECTIONS OF NORTHERN GREAT PLAINS COAL MINING AND ENERGY CONVERSION DEVELOPMENT 1975-2000.
MONTANA UNIVERSITY COAL DEMAND STUDY TEAM.
FINAL REPORT. 1976.

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00000912

PROJECT TITLE

HYDROLOGY OF THE MADISON LIMESTONE AND ASSOCIATED ROCKS IN PARTS OF MONTANA, NEBRASKA, NORTH DAKOTA, SOUTH DAKOTA, AND WYOMING

PROJECT NUMBER

CR76-192

INVESTIGATORS

ELLIOTT M. CUSHING (USGS) / WILLIAM R. MILLER (MT USGS) /

RESEARCH INSTITUTION

U.S. GEOLOGICAL SURVEY / MAIL STOP 412, BOX 25046
DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY SPONSOR

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.

PRIMARY FUNDING AMOUNT

9,000,000

TIME FRAME

DEC. 1975 TO SEPT. 1980

LOCATION

MT NE ND SD WY; POWDER RIVER BASIN

ABSTRACT

MAJOR DEVELOPMENT OF COAL WITHIN THE AREA WILL PLACE A HEAVY DEMAND ON THE AREA'S LIMITED WATER RESOURCES. SURFACE WATER IS POORLY DISTRIBUTED IN TIME AND SPACE. IT IS FULLY APPROPRIATED IN PART OF THE AREA, AND IN THE REST ITS USE WILL REQUIRE STORAGE RESERVOIRS AND DISTRIBUTION SYSTEMS. PRELIMINARY STUDIES INDICATE THAT THE MADISON LIMESTONE (MADISON GROUP) AND ASSOCIATED ROCKS MIGHT PROVIDE A SIGNIFICANT PERCENTAGE OF THE TOTAL WATER REQUIREMENTS FOR COAL DEVELOPMENT. HOWEVER, THE EFFECTS OF LARGE SUSTAINED WITHDRAWALS OF WATER FROM THESE ROCKS ON THE HYDROLOGIC SYSTEM ARE NOT KNOWN.

THE OBJECTIVES OF THE FIVE-YEAR HYDROLOGIC STUDY OF THE MADISON LIMESTONE AND ASSOCIATED ROCKS ARE TO EVALUATE THE QUANTITY OF WATER THAT MAY BE AVAILABLE FROM THE MADISON; DEFINE THE CHEMICAL AND PHYSICAL PROPERTIES OF THE WATER; DETERMINE THE EFFECTS OF EXISTING DEVELOPMENTS ON POTENTIOMETRIC HEAD, STORAGE, RECHARGE AND DISCHARGE, SPRING FLOW AND STREAM FLOW, AND PATTERN OF GROUND WATER FLOW; PREDICT THE POSSIBLE HYDROLOGIC EFFECTS OF PROPOSED WITHDRAWALS OF WATER FOR LARGE-SCALE DEVELOPMENTS AT SELECTED RATES AND LOCATIONS; DETERMINE THE OPTIMUM LOCATIONS FOR WELLS AND THE TYPE OF CONSTRUCTION AND DEVELOPMENT OF DEEP WELLS TO OBTAIN MAXIMUM YIELDS, AND DESIGN A NETWORK OF OBSERVATION WELLS AND STREAMFLOW GAGES TO MONITOR EFFECTS OF ADDITIONAL DEVELOPMENTS ON THE HYDROLOGIC SYSTEM. (MEO)

STUDY AFFILIATION

THIS PROJECT IS RELATED TO 'AVAILABILITY OF WATER FROM THE MADISON AND ASSOCIATED LIMESTONES IN THE POWDER RIVER BASIN,' SERIAL NUMBER 0000010I, ERIS QUARTERLY REPORT, VOL. I, NO. 1, NOVEMBER 1975.

REPORTS AND PUBLICATIONS

R. K. BLANKENNAGEL, ET AL. REPORT ON PRELIMINARY DATA FOR MADISON LIMESTONE TEST WELL NO. 1, NE 1/2 SE 1/2 SECTION 15, T. 57N., R. 65W., CROOK COUNTY, WYOMING.
U.S. GEOLOGICAL SURVEY WATER-SUPPLY PAPER 2043, 51 P. 1976.

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00000913

PROJECT TITLE

AQUATIC BIOLOGICAL INVENTORY, YOUNG'S CREEK DRAINAGE, BIGHORN COUNTY

INVESTIGATORS

DANA C. SCHMIDT / TOM OLSON

RESEARCH INSTITUTION

OLSON-ELLIOTT & ASSOCIATES / BOX 1209, 349 N. MAIN /
HELENA, MT 59601

PRIMARY SPONSOR

SHELL OIL CORP., WESTECH / COLONIAL CONVENTION CENTER /
HELENA, MT 59601

TIME FRAME

JUNE 1975 TO NOVEMBER 1977

LOCATION

MT - BIGHORN CO.; TONGUE-RIVER, YOUNG'S CREEK DRAINAGE

ABSTRACT

THE OBJECTIVE OF THIS SURVEY IS TO PROVIDE A COMPLETE PREMINING INVENTORY OF THE AQUATIC BIOLOGY OF THE YOUNG'S CREEK DRAINAGE AREAS THAT MAY BE AFFECTED BY FUTURE MINING DEVELOPMENT. THE DATA BASE DEVELOPED INCLUDES DATA ON INVERTEBRATE, PERIPHYTON, MACROPHYTE, AND FISH COMMUNITIES. (MEO)

REPORTS AND PUBLICATIONS

DANA C. SCHMIDT AND THOMAS M. OLSON. THE AQUATIC INVERTEBRATE FAUNA OF A SMALL EASTERN MONTANA STREAM.

PROCEEDINGS OF THE MONTANA ACADEMY OF SCIENCES, 36:52-55.
1977.

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00000914
PROJECT TITLE
WATER RESOURCES WORKGROUP, WEST-CENTRAL NORTH DAKOTA
PROJECT NUMBER
1212-3806-HB00
INVESTIGATORS
W. B. HOPINS / A. L. LEONARD / F. B. WALLING / DALE FRINK
RESEARCH INSTITUTION
U.S. BUREAU OF LAND MANAGEMENT / 222 N. 32ND ST. /
BOX 30157 / BILLINGS, MT 59107
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT / BILLINGS, MT 59107
SECONDARY SPONSORS
NORTH DAKOTA STATE WATER COMMISSION
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
600,000 (AMOUNT OF OVERALL EIS FUNDING: SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
SECONDARY FUNDING AMOUNTS
192,000 (AMOUNT OF OVERALL FUNDING; SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
TIME FRAME
MAY 1976 TO JUNE 1978
LOCATION
ND - BURLEIGH, DUNN, MERCER, MCLEAN, MORTON, OLIVER, AND STARK COUNTIES (WEST-CENTRAL NORTH DAKOTA, MISSOURI RIVER BASIN)
ABSTRACT
THE RELATIONSHIPS OF PROPOSED AND TENTATIVE ENERGY-DEVELOPMENT PROJECTS TO WATER RESOURCES ARE IDENTIFIED AND ANALYZED WITHIN THE NEPA FRAMEWORK FOR WEST-CENTRAL NORTH DAKOTA. NO NEW DATA WERE GENERATED; PUBLISHED AND OPEN-FILE SOURCES WERE USED.
STUDY AFFILIATION
PART OF 'WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT.' U.S. BUREAU OF LAND MANAGEMENT, SERIAL NUMBER 00000541, ERIS PROJECTS REPORT, VOL. 2, NO. 1, JANUARY, 1977.
REPORTS AND PUBLICATIONS
DRAFT ENVIRONMENTAL IMPACT STATEMENT, WEST-CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT. U.S. BUREAU OF LAND MANAGEMENT AND STATE OF NORTH DAKOTA. TO BE AVAILABLE DECEMBER, 1977. FINAL E.I.S. SCHEDULED FOR COMPLETION MAY, 1978. AVAILABLE FROM BLM, BILLINGS, MT.

00000915
PROJECT TITLE
GEOLOGY, TOPOGRAPHY AND MINERALS WORKGROUP, WEST CENTRAL NORTH DAKOTA REGIONAL E.I.S.
PROJECT NUMBER
1212 3806 H800
INVESTIGATORS
WILLIAM FREY (BLM) / TOM FINNELL / GEORGE PRICHARD / ARVID STROMGUIST (USGS)
RESEARCH INSTITUTION
U.S. BUREAU OF LAND MANAGEMENT / BOX 31057 / BILLINGS, MT
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT / BILLINGS, MT 59107
SECONDARY SPONSORS
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
600,000 (AMOUNT OF OVERALL EIS FUNDING, SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
SECONDARY FUNDING AMOUNTS
192,000 (AMOUNT OF OVERALL FUNDING; SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
TIME FRAME
MAY 1976 TO JUNE 1978
LOCATION
ND - BURLEIGH, DUNN, MERCER, MCLEAN, MORTON, OLIVER AND STARK COUNTIES
ABSTRACT
THE EFFECTS OF ENERGY DEVELOPMENT, COAL MINES, POWER PLANTS, COAL GASIFICATION PLANTS PROPOSALS ON TOPOGRAPHY, STRATIGRAPHY, MINERALS AND OTHER GEOLOGY RELATED DISCIPLINES AS IDENTIFIED IN THE NATIONAL ENVIRONMENTAL POLICY ACT.
STUDY AFFILIATION
PART OF 'WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT,' U.S. BUREAU OF LAND MANAGEMENT, SERIAL NUMBER 00000541, ERIS PROJECTS REPORT, VOL. 2, NO. 1, JANUARY, 1977.

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00000916
PROJECT TITLE
PLANT & SOILS WORKGROUP - WEST CENTRAL NORTH DAKOTA REGIONAL E.I.S.
INVESTIGATORS
LLOYD F. EMMONS (BLM) / TERRY LINDBO (STATE OF NORTH DAKOTA) JERRY BROMENCHENK, (UNIV. OF MONTANA)
RESEARCH INSTITUTION
U.S. BUREAU OF LAND MANAGEMENT / 222 N. 32ND ST., BOX 30157 BILLINGS, MT 59107
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT / BILLINGS, MT 59107
SECONDARY SPONSORS
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
600,000 (AMOUNT OF OVERALL EIS FUNDING; SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
SECONDARY FUNDING AMOUNTS
192,000 (AMOUNT OF OVERALL EIS FUNDING; SPECIFIC SUBPROJECT FUNDING NOT AVAILABLE)
TIME FRAME
AUG. 1976 TO JUNE 1978
LOCATION
ND - DUNN, MERCER, OLIVER, MCLEAN, BURLEIGH, MORTON, AND STARK COUNTIES
ABSTRACT
VEGETATIVE ANALYSIS OF NORTH DAKOTA VEGETATION FOR SO2 AND F TO DETERMINE PRESENT LEVELS THROUGHOUT THE SEVEN COUNTY STUDY AREA.
STUDY AFFILIATION
PART OF 'WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT,' U.S. BUREAU OF LAND MANAGEMENT AND OLD WEST REGIONAL COMMISSION, SERIAL NUMBER 00000541, ERIS PROJECTS REPORT, VOL. 2, NO. 1, JANUARY, 1977.
REPORTS AND PUBLICATIONS
DRAFT EIS SCHEDULED FOR COMPLETION DEC. 1977. FINAL EIS SCHEDULED FOR COMPLETION MAY 1978. AVAILABLE FROM BLM, BILLINGS, MT 59107.

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00000917
PROJECT TITLE
PRAIRIE DOG TOWN MAPPING, MCCONE COUNTY, COLOR-INFRARED PHOTO INTERPRETATION
INVESTIGATORS
TOM OLSON / GERALD MOORE
RESEARCH INSTITUTION
OLSON-ELLIOTT & ASSOCIATES / BOX 1209, 349 N. MAIN HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF LIVESTOCK / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
1,440
TIME FRAME
MAY 1977 TO JUNE 1977
LOCATION
MT - MCCONE CO.
ABSTRACT
PROJECT INVOLVED PREPARATION OF A MAP OVERLAY AND ACREAGE

DETERMINATIONS FOR PRAIRIE DOG TOWNS IN MCCONE COUNTY, MONTANA. THIS EXERCISE WAS COMPLETED USING AVAILABLE BLACK AND WHITE AND COLOR-INFRARED PHOTOGRAPHY. THE SITE OF THIS PROJECT IS IN THE CIRCLE WEST PROJECT STUDY AREA. (MEO)

REPORTS AND PUBLICATIONS

KEN SEYLER. DATA AND MAP SUBMITTED TO MONTANA DEPT. OF LIVESTOCK. HELENA, MT 59601

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00000918

PROJECT TITLE

PHOTOGRAPHIC MONITORING OF NATIVE VEGETATION FOR AIR QUALITY STUDIES

PROJECT NUMBER

G&C 665

INVESTIGATORS

DR. JOHN E. TAYLOR

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF ANIMAL & RANGE SCIENCES
BOZEMAN, MT 59715

COORDINATOR

CROW INDIAN RESERVATION
NORTHERN CHEYENNE INDIAN RESERVATION

PRIMARY SPONSOR

U.S. BUREAU OF INDIAN AFFAIRS / BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT

62.102

TIME FRAME

OCT. 1976 TO SEPT. 1978

LOCATION

MT

ABSTRACT

OBJECTIVES: 1. TO GATHER BASELINE DATA ON SELECTED EXAMPLES OF NATIVE GRASSLAND, SHRUBLAND, AND FOREST VEGETATION TYPES; 2. TO DEVELOP PROCEDURES FOR LONG-TERM MONITORING OF CHANGES IN THESE TYPES; 3. SPECIFICALLY TO STUDY NATIVE VEGETATION TYPES FOR ANY CHANGES INDUCED BY AIR POLLUTION OR OTHER DISTURBANCES CAUSED IN CONNECTION WITH THE DEVELOPMENT OF MINING OR ENERGY PRODUCTION ACTIVITIES ON THE RESERVATIONS OR ON ADJACENT LAND.

RESPONSIBILITIES: MONTANA STATE UNIVERSITY: CONSULT WITH BIA PERSONNEL ABOUT SELECTING STUDY AREAS, ESTABLISHING GROUND TARGETS, AND DESIGNING VEGETATION MONITORING PROCEDURES. PLAN AND CONDUCT AERIAL PHOTOGRAPHIC MISSIONS, ARRANGE FOR PROCESSING AND DUPLICATION OF IMAGERY; STORE ORIGINAL FILM. ASSIST IN GROUND TRUTH AND PHOTO-INTERPRETATION STUDIES; DEVELOP PROCEDURES FOR VEGETATIONAL MAPPING AND COMPUTER PROCESSING OF DATA. PREPARE REPORTS AS REQUIRED BY CONTRACTING AGENCY. ASSIST IN PLACEMENT AND OPERATION OF CLIMATOLOGICAL MONITORING EQUIPMENT.

BUREAU OF INDIAN AFFAIRS: SELECT STUDY AREAS, LAY OUT GROUND TARGETS, COLLECT GENERAL VEGETATION AND SITE DATA. ESTABLISH GROUND PHOTO PLOTS. PROVIDE MAPS AND DATA FOR AERIAL PHOTO PLANNING AND GROUND STUDIES. THE UNIVERSITY AND THE BUREAU OF INDIAN AFFAIRS BOTH WILL HAVE THE RIGHT TO PUBLISH SCIENTIFIC AND POPULAR PAPERS ABOUT THIS WORK, WITH THE UNDERSTANDING THAT EACH AGENCY WILL CONSULT AND CLEAR WITH THE OTHER. (MEO)

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00000919

PROJECT TITLE

NORTHERN GREAT PLAINS BREEDING-BIRD SURVEY

PROJECT NUMBER

047-76

INVESTIGATORS

AL KANTRUD

RESEARCH INSTITUTION

U.S. FISH & WILDLIFE SERV., NO. PRAIRIE WILDLIFE RES. CTR.
JAMESTOWN, ND 58401

PRIMARY SPONSOR

U.S. FISH & WILDLIFE SERV., WELUT
ROB STREETER / RM. 206 - FEDERAL BLDG / FT. COLLINS, CO

PRIMARY FUNDING AMOUNT

140.000

TIME FRAME

MAY 1975 TO CONTINUING

LOCATION

MT ND WY SD MN AND THE PRAIRIE REGIONS OF ALBERTA, SASKATCHEWAN, AND MANITOBA, CANADA

ABSTRACT

THE PROJECT WAS AN ONGOING PRELIMINARY EFFORT TO: 1. DEVELOP A SATISFACTORY, REALISTIC CLASSIFICATION OF GRASSLAND BIOTIC COMMUNITIES ON THE NORTHERN INTERIOR PLAINS OF NORTH AMERICA (INCLUDING THE PRAIRIE REGIONS OF ALBERTA, SASKATCHEWAN, MANITOBA, MONTANA, AND NORTH DAKOTA, AND PORTIONS OF WYOMING, SOUTH DAKOTA, AND MINNESOTA), AND 2. TO ASSESS THE USE MADE OF EACH PRAIRIE GRASSLAND COMMUNITY TYPE BY BREEDING-BIRD POPULATIONS. THE STUDY WILL BE MODIFIED DURING THIS FY TO SELECT AND MODIFY A CLASSIFICATION SYSTEM JOINTLY WITH THE HABITAT ASSESSMENT GROUP, AND TO DESIGN, PLAN, AND INITIATE COOPERATIVE STUDIES (WITH OTHER FWS RESEARCH ELEMENTS) TO QUANTIFY THE DISTRIBUTION AND ABUNDANCE AND RATES OF CHANGE OF NATURAL AND ALTERED ECOSYSTEMS IN THE NGP TO CHARACTERIZE THESE ECOSYSTEMS AS TO THE PRODUCTIVITY AND IMPORTANCE TO THE MAINTENANCE OF AVIAN POPULATIONS, AND DEVELOP MODELS TO PREDICT THE IMPACT OF HABITAT CHANGES ON THE DIVER-

SITY AND PRODUCTION OF AVIAN POPULATIONS IN THE NGP.
PRODUCT: A REPORT WHICH WILL INCLUDE THE FOLLOWING:
1. LOCATION OF TRACTS OF NATIVE PRAIRIE OF 40 ACRES
OR MORE: 2. PRELIMINARY PRAIRIE CLASSIFICATION SYSTEM;
3. VALUE OF EACH COMMUNITY TYPE TO BREEDING-BIRD
POPULATIONS.

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00000920
PROJECT TITLE
EFFECTS OF COAL EXTRACTION AND RELATED DEVELOPMENT
ON WILDLIFE DENSITY
PROJECT NUMBER
045-76
INVESTIGATORS
BOB PHILLIPS / SHERIDAN, WY
RESEARCH INSTITUTION
U.S. FISH & WILDLIFE SERV., SHERIDAN FIELD STATION
PRIMARY SPONSOR
U.S. FISH & WILDLIFE SERV., WELUT
BOB STREETER / RM. 206 - FEDERAL BLDG / FT. COLLINS, CO
PRIMARY FUNDING AMOUNT
120,000/YR
TIME FRAME
APR. 1975 TO APR. 1979
LOCATION
MT WY
ABSTRACT
THE STUDY WILL CHARACTERIZE SELECTED WILDLIFE HABITATS
AND DETERMINE THE LONG-TERM EFFECTS OF COAL DEVELOPMENT
ON THESE HABITAT AND RELATED WILDLIFE POPULATION
RESPONSES. BASIC POPULATION INDICES OF SELECTED WILDLIFE
SPECIES WILL BE ESTABLISHED PRIOR TO MINING ACTIVITIES
AND FOLLOWING CHANGES DURING AND AFTER THE DEVELOPMENT
PERIOD. THE STUDY IS ALSO DESIGNED TO DETERMINE THE
EFFECTIVENESS OF LAND-RECLAMATION PROCEDURES, MEASURE
AND EVALUATE THE SIGNIFICANT HABITAT TYPES ON AND
NEAR THE STUDY AREAS AND DETERMINE HOW MOVEMENT PATTERNS
OF SELECTED WILDLIFE SPECIES ARE AFFECTED BY MINING AND
RELATED ACTIVITIES.
PRODUCT: A QUANTITATIVE REPORT SHOWING HOW COAL EXTRACTION AND RELATED DEVELOPMENT AFFECTS WILDLIFE.
RECOMMENDATIONS WILL BE GIVEN ON HOW MINING PLANS CAN
BE ALTERED TO HAVE THE LEAST DETRIMENTAL EFFECT ON
WILDLIFE.

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00000921
PROJECT TITLE
PEABODY ANNUAL VEGETATION STUDY
INVESTIGATORS
ROBERT CARROLL
RESEARCH INSTITUTION
ECOLOGICAL CONSULTING SERVICE / AIRPORT WAY BUILDING WEST
HELENA, MT 59601
PRIMARY SPONSOR
PEABODY COAL CO.
PRIMARY FUNDING AMOUNT
PROPRIETARY
TIME FRAME
JAN. 1977 TO NOV. 1977
LOCATION
MT - ROSEBUD CO.; COLSTRIP
ABSTRACT
A STUDY TO OBTAIN ANNUAL VEGETATION PRODUCTION ON THE
PEABODY MINING AREAS AT BIG SKY MINE AT COLSTRIP. (MEO)
REPORTS AND PUBLICATIONS
ANNUAL REPORT FILED WITH MONTANA DEPT. OF STATE LANDS
AND THE U.S. GEOLOGICAL SRUVEY.

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00000922
PROJECT TITLE
BROPHY MINE WILDLIFE AND WILDLIFE HABITAT RECONNAISSANCE -
ONE SEASON STUDY
INVESTIGATORS
ROBERT CARROLL
RESEARCH INSTITUTION
ECOLOGICAL CONSULTING SERVICE / AIRPORT WAY BUILDING WEST
HELENA, MT 59601
PRIMARY SPONSOR
BEARTOOTH COAL CO.
PRIMARY FUNDING AMOUNT
9,000
TIME FRAME
MAR. 1977 TO JULY 1977
LOCATION
MT - CARBON CO.
ABSTRACT
BEARTOOTH COAL COMPANY WILDLIFE AND WILDLIFE HABITAT,
AND AQUATIC RECONNAISSANCE FOR THE BROPHY MINE NEAR
RED LODGE. (MEO)
REPORTS AND PUBLICATIONS
REPORTS ARE FILED WITH THE MONTANA DEPT. OF STATE
LANDS, HELENA, MT 59601.

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00000923
PROJECT TITLE
BLM FALSE COLOR INFRARED AND INTERPRETATION MAPPING

STUDY
INVESTIGATORS
ROBERT E. CARROLL
RESEARCH INSTITUTION
ECOLOGICAL CONSULTING SERVICE / AIRPORT WAY BUILDING WEST
HELENA, MT 59601
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT
PRIMARY FUNDING AMOUNT
14,500
TIME FRAME
JAN. 1977 TO MAY 1977
LOCATION
MT - WIBAUX CO.: WIBAUX PLANNING UNIT
ABSTRACT
FALSE COLOR INFRARED AND INTERPRETATION MAPPING FOR CURRENT LAND USE RANGE TERRESTRIAL ECOSYSTEMS, AQUATIC ECOSYSTEMS, SCORIA OUTCROPS, EROSION CLASS AND CONDITION AND VARIOUS OTHER PARAMETERS FOR THE U.S. BUREAU OF LAND MANAGEMENT. (MEO)
REPORTS AND PUBLICATIONS
NUMEROUS MAPS AND AN INTERPRETATIVE REPORT WERE SUBMITTED TO THE U.S. BUREAU OF LAND MANAGEMENT.

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00000924
PROJECT TITLE
CIRCLE WEST VEGETATION INVENTORY
INVESTIGATORS
JOE ELLIOTT
RESEARCH INSTITUTION
OLSON-ELLIOTT & ASSOCIATES / BOX 1209, 349 N. MAIN/
HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
32 S. EWING / HELENA, MT 59601
TIME FRAME
JUNE 1976 TO DEC. 1977
LOCATION
MT - MCCONE CO. AND ADJACENT AREAS
ABSTRACT
FIELD VEGETATION DATA WAS OBTAINED OVER THE CIRCLE WEST PROJECT STUDY AREA. DATA IS BEING USED TO DEVELOP A CLASSIFICATION SYSTEM TO MAP VEGETATION COMMUNITIES OF THE STUDY AREA. (MEO)
REPORTS AND PUBLICATIONS
RICHARD PRODGERS. PRELIMINARY FIELD DATA SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPT. OF NATURAL RESOURCES, HELENA, MT 59601.

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00000925
PROJECT TITLE
INSECT STUDY PROJECT ON THE NORTHERN CHEYENNE RESERVATION
INVESTIGATORS
JOE ELLIOTT / TOM OLSON
RESEARCH INSTITUTION
OLSON-ELLIOTT & ASSOCIATES / BOX 1209, 349 N. MAIN
HELENA, MT 59601
PRIMARY SPONSOR
U.S. BUREAU OF INDIAN AFFAIRS / LAME DEER, MT 59043
PRIMARY FUNDING AMOUNT
27,410
TIME FRAME
JULY 1976 TO MAY 1978
LOCATION
MT - NORTHERN CHEYENNE INDIAN RESERVATION
ABSTRACT
THIS STUDY IS A BASELINE INVENTORY OF INSECT AND OTHER DAMAGE TO PONDEROSA PINE ON THE NORTHERN CHEYENNE INDIAN RESERVATION. BASELINE LEVELS OF FLUORIDE AND SULFUR ARE ALSO INCLUDED. THE INFORMATION GATHERED IN THIS STUDY WILL BE USEFUL IN DETERMINING THE ULTIMATE EFFECTS OF THE COLSTRIP POWER PLANTS ON THE FOREST RESOURCE OF THE RESERVATION. (MEO)
REPORTS AND PUBLICATIONS
JOE ELLIOTT AND THOMAS OLSON. NORTHERN CHEYENNE FOREST INSECT STUDY, INTERIM REPORT. OLSON-ELLIOTT & ASSOCIATES. 1977.

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00000926
PROJECT TITLE
POPLAR RIVER VEGETATION EFFECTS STUDY
INVESTIGATORS
NORMAN GLASS
RESEARCH INSTITUTION
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
200 SW 35TH ST. / CORVALLIS, OR 97330
PRIMARY SPONSOR
U.S. EPA
PRIMARY FUNDING AMOUNT
15,000
TIME FRAME
JAN. 1977 TO DEC. 1977
LOCATION
MT - POPLAR RIVER
ABSTRACT
BECAUSE OF THE EXISTING WHEAT INDUSTRY IN NORTHEASTERN

MONTANA, AS WELL AS THE CONCERN FOR THE PROTECTION OF OTHER VEGETATION FROM THE HARMFUL EFFECTS OF AIR POLLUTANTS. A DETAILED STUDY WILL BE PERFORMED TO DOCUMENT THE THRESHOLD AIR QUALITY LEVELS WHICH ARE INJURIOUS TO CROPS AND VEGETATION. WHEAT AND OTHER CEREAL CROPS IN THE GERMINATION STAGE WILL BE STUDIED. VEGETATION SENSITIVITY WILL BE ANALYZED. AN INITIAL STEP WILL BE TO EVALUATE THE EXISTING LAND USE. A SECOND STEP WILL BE TO PERFORM A LITERATURE SEARCH ON THE EFFECTS OF AIR POLLUTANTS ON THE PERTINENT SPECIES. THE FINAL PHASE OF THIS PROGRAM WILL BE TO CONDUCT GREEHOUSE STUDIES IN ORDER TO COLLECT THOSE MISSING DATA. (MEO)

STUDY AFFILIATION

PART OF 'POPLAR RIVER STUDY,' U.S. EPA.

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00000927

PROJECT TITLE

NANCE MINE VEGETATION BASELINE DATA INVENTORY

INVESTIGATORS

DANA SCHMIDT / PETER HUSBY / JOE ANTOSE / JOE ELLIOTT / GERALD MOORE

RESEARCH INSTITUTION

OLSON-ELLIOTT & ASSOCIATES / BOX 1209 / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA DEPT. OF STATE LANDS / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

26,774

TIME FRAME

JULY 1977 TO SEPT. 1978

LOCATION

MT - ROSEBUD CO.: TONGUE RIVER DRAINAGE, BIRNEY AREA

ABSTRACT

THE STUDY IS DESIGNED TO PROVIDE BASELINE VEGETATION DATA AS TO PLANT COMMUNITY COMPOSITION, PRODUCTION, AND PLANT SPECIES OF THE AREA. THE DATA IS TO BE USED FOR PRE-MINING EVALUATION OF THE SITE. (MEO)

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00000928

PROJECT TITLE

AERIAL PHOTO INTERPRETATION, SOUTHWESTERN NORTH DAKOTA

INVESTIGATORS

JOE ELLIOTT / TOM OLSON / GERALD MOORE / STEVE GILBERT
JACQUELINE MOORE / DANA SCHMIDT

RESEARCH INSTITUTION

OLSON-ELLIOTT & ASSOCIATES / BOX 1209, 349 N. MAIN
HELENA, MT 59601

PRIMARY SPONSOR

U.S. BUREAU OF LAND MANAGEMENT, DIV. OF RESOURCES
BILLINGS, MT 59107

PRIMARY FUNDING AMOUNT

74,484

TIME FRAME

JUNE 1976 TO MAR. 1977

LOCATION

ND - STARK, BILLINGS, MORTON, MCLEAN, DUNN, BURLEIGH, BOWMAN, SLOPE, HETTINGER, AND ADAMS COUNTIES

ABSTRACT

THE STUDY INVOLVED PREPARATION OF RESOURCE OVERLAYS USING COLOR-INFRARED PHOTOGRAPHY AS A TOOL IN OBTAINING DATA. OVERLAYS INCLUDED VEGETATION TYPES, WILDLIFE HABITAT COMPONENTS INCLUDING WETLANDS, WOODLANDS, AND BRUSHLANDS: EROSION CONDITIONS, SURFACE HYDROLOGY, CURRENT LAND USE, RANGELAND, AND PORCELANTIE DEPOSITS. (MEO)

REPORTS AND PUBLICATIONS

INTERPRETIVE GUIDE TO THE RESOURCE MAPS OF PORTIONS OF SOUTHWESTERN NORTH DAKOTA. (TWO GUIDES, DUNN/MCLEAN, STARK/BILLINGS, AND MORTON/BURLEIGH COUNTIES - BOWMAN, SLOPE HETTINGER, AND ADAMS COUNTIES). OLSON-ELLIOTT & ASSOCIATES. GUIDES AND MAPS SUBMITTED TO BUREAU OF LAND MANAGEMENT, DIV. OF RESOURCES, BILLINGS, MT.

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00000929

PROJECT TITLE

POPLAR RIVER STUDY

INVESTIGATORS

ROB HAGEN (U.S. EPA) / BILL CHRISTIANSEN (MEO) /
GEORGE PIKE (USGS) / NORMAN GLASS (EPA, CORVALLIS)

RESEARCH INSTITUTION

U.S. EPA / 1860 LINCOLN ST. / DENVER, CO 80205

COORDINATOR

MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
MONTANA AIR QUALITY BUREAU
MONTANA WATER QUALITY BUREAU
MONTANA DEPT. OF FISH AND GAME
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
U.S. EPA, ENVIRONMENTAL MONITORING & SUPPORT LAB
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
FORT PECK TRIBE

PRIMARY SPONSOR

U.S. EPA

PRIMARY FUNDING AMOUNT

400,000

TIME FRAME

JAN. 1977 TO CONTINUING

LOCATION

MT - POPLAR RIVER

ABSTRACT

THE SASKATCHEWAN POWER CORPORATION IS BUILDING A 300-MEGAWATT ELECTRIC POWER GENERATING STATION NEAR CORONACH, SASKATCHEWAN, ABOUT 30 MILES NORTHWEST OF SCOBEY ON THE EAST FORK OF THE POPLAR RIVER. CONSTRUCTION AND OPERATION OF THIS PLANT, THE FIRST OF FOUR SUCH PLANTS THAT CANADIAN FIRMS MAY BUILD ON THE POPLAR, IS CAUSING CONCERN ABOUT POSSIBLE DEGRADATION OF THE ENVIRONMENT IN THE U.S. THE UNITS WILL USE LIGNITE, WHICH IS ABUNDANT IN THE AREA, FOR POWER GENERATION AND WILL BE COOLED BY WATER FROM A 32,000 ACRE-FEET CAPACITY RESERVOIR ON THE EAST POPLAR RIVER.

THE ENVIRONMENTAL PROTECTION AGENCY HAS INITIATED A STUDY OF THE POPLAR RIVER BASIN WHICH WILL INCLUDE THE FOLLOWING COMPONENTS: 1. SOILS ANALYSIS, UPPER AIR METEOROLOGY, COAL ANALYSIS, BASELINE AMBIENT AIR QUALITY, VEGETATION, AND VISIBILITY COMPONENTS TO BE CONDUCTED BY THE AIR QUALITY BUREAU, MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES; 2. FISH AND FURBEARER STUDIES TO BE CONDUCTED BY THE MONTANA DEPT. OF FISH AND GAME; 3. WATER QUALITY MODELING EFFORT TO BE CONDUCTED BY THE WATER QUALITY BUREAU, MONTANA DEPT. OF HEALTH AND ENVIRONMENTAL SCIENCES; 4. WATER USE COMPONENT TO BE CONDUCTED BY THE WATER RESOURCES DIVISION, MONTANA DEPT. OF NATURAL RESOURCES AND CONSERVATION; 5. GROUND WATER AND SURFACE WATER MONITORING TO BE CONDUCTED BY THE U.S. GEOLOGICAL SURVEY; 6. VEGETATION EFFECTS RESEARCH TO BE CONDUCTED BY EPA'S CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY; 7. A WATER USE COMPONENT WHICH WILL DESCRIBE THE FUTURE AND EXISTING WATER USE ON TSIBAL LAND WILL BE UNDERTAKEN BY THE FORT PECK TRIBE; 8. REMOTE SENSING LAND USE MAPPING WILL BE UNDERTAKEN BY EPA'S LAS VEGAS LABORATORY.

THE ENVIRONNMENTAL PROTECTION AGENCY WILL BE INTEGRATING THE EFFORT SO AS TO PROVIDE SUPPORT FOR THE EIS PROCESS DICTATED UNDER NEPA AS WELL AS TO PROVIDE ALTERNATIVE AIR POLLUTION CONTROL STRATEGIES. (MEO)

REPORTS AND PUBLICATIONS

THE DATA INTEGRATED FROM THIS STUDY WILL PRODUCE TWO REPORTS. ONE REPORT WILL ASSESS ENVIRONMENTAL IMPACT OF AIR AND WATER POLLUTION TO THE U.S. EMANATING FROM THE COAL-FIRED POWER PLANT AT CORONACH. THE SECOND REPORT WILL CONSIDER ALTERNATIVE AIR CONTROL STRATEGIES THAT COULD BE IMPLEMENTED BY THE CANADIANS SO AS TO REDUCE THE AMOUNT OF SULFATES AND PARTICULATES CARRIED ACROSS THE U.S. BORDER FROM CANADA.

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00000930

PROJECT TITLE

SOILS ANALYSES IN THE POPLAR BASIN

INVESTIGATORS

ABE HORPESTAD

RESEARCH INSTITUTION

MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES, WATER QUALITY BUREAU / HELENA, MT 59601

PRIMARY SPONSOR

U.S. EPA

PRIMARY FUNDING AMOUNT

1,800

TIME FRAME

JAN. 1977 TO DEC. 1977

LOCATION

MT - POPLAR RIVER

ABSTRACT

DEVELOPMENTS PROPOSED BY THE SASKATCHEWAN POWER CORPORATION IN THE POPLAR RIVER AREA OF CANADA MAY HAVE HARMFUL IMPACTS ON THE SOILS OF MONTANA. SUCH IMPACTS MAY BE DERIVED FROM AIR- AND/OR WATER-BORNE CONTAMINANTS EMANATING FROM THE POWER PROJECT.

THE GOAL OF THIS EFFORT IS TO ESTABLISH BASELINE CONDITIONS UPON WHICH THE ADVERSE EFFECTS ON EXTANT SOILS IN MONTANA RESULTING FROM REDUCED QUALITY OF IRRIGATION WATERS AND ALSO HIGH LEVELS OF GASES AND PARTICULATES EMANATING FROM THE POWER PLANT MAY BE EVALUATED. AT LEAST 15 SITES WILL BE SAMPLED WITH THREE SAMPLES BEING TAKEN FROM REPRESENTATIVE SPOTS AT EACH SITE. RECORDS WILL BE KEPT ON PROFILE DESCRIPTIONS, TOPOGRAPHY SURFACE SLOPE, SOIL SERIES, YEARS OF CULTIVATION, YEARS OF IRRIGATION, SOURCE OF WATER, CROP DATA, MANAGEMENT PRACTICES, DISTURBANCES, MICRORELIEF, COMPLETE DESCRIPTION OF SITE LOCATION, AND A LOCATION SKETCH FOR EACH SAMPLE. (MEO)

STUDY AFFILIATION

PART OF THE 'POPLAR RIVER STUDY,' U.S. EPA

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00000931

PROJECT TITLE

POPLAR RIVER FISH AND FURBEARER IMPACT STUDIES

INVESTIGATORS

JIM POSEWITZ

RESEARCH INSTITUTION

MONTANA DEPT. OF FISH AND GAME, ECOLOGICAL SERVICES HELENA, MT 59601

PRIMARY SPONSOR

U.S. EPA

PRIMARY FUNDING AMOUNT

20,000

TIME FRAME

JAN. 1977 TO DEC. 1977

LOCATION

MT - POPLAR RIVER

ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE TO: 1. IDENTIFY BOTH FISH AND WILDLIFE SPECIES DEPENDENT UPON THE POPLAR RIVER; 2. DETERMINE THE LIFE HISTORY REQUIREMENTS OF THE KEY FISH AND WILDLIFE POPULATIONS NOW FOUND IN AND ALONG THE POPLAR RIVER; 3. DESCRIBE THE HABITAT CHARACTERISTICS CRITICAL TO MEETING THE ECOLOGICAL REQUIREMENTS OF KEY FISH AND WILDLIFE SPECIES; 4. RELATE THIS ECOLOGICAL INFORMATION TO CHANGES EFFECTED BY THE POWER PLANT COMPLEX DEVELOPMENT AND PREDICTABLE ALTERATIONS THAT WOULD OCCUR WITH EXPANDED WATER CONSUMPTION. THE WORK WILL BE DIVIDED INTO A FISHERIES PROJECT, A WATERFOWL PROJECT AND A FURBEARER PROJECT, WITH ALL THREE PROJECT SEGMENTS MAKING A CONTRIBUTION TO THE UNDERSTANDING OF NONGAME WILDLIFE SPECIES ALSO DEPENDENT UPON THIS PARTICULAR SYSTEM. (MEO)

STUDY AFFILIATION

PART OF 'POPLAR RIVER STUDY.' U.S. EPA.

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00000932

PROJECT TITLE

MONTANA AIR POLLUTION STUDY - I (MAPS-I)

INVESTIGATORS

MICHAEL D. ROACH / BOB RAISCH / JIM GELHAUS / HAL ROBBINS
DAVE MAUGHAN / DENNIS HADDOW

RESEARCH INSTITUTION

MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES, AIR QUALITY BUREAU / COGSWELL BLDG / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA STATE GOVERNMENT

SECONDARY SPONSORS

U.S. EPA

PRIMARY FUNDING AMOUNT

1,070,000

SECONDARY FUNDING AMOUNTS

23,400

TIME FRAME

JULY 1977 TO JULY 1979

LOCATION

MT - YELLOWSTONE CO.: BILLINGS / SILVER BOW CO.; BUTTE
MISSOULA CO.: MISSOULA / LEWIS & CLARK CO.; EAST HELENA
BIG HORN CO.: HARDIN / FLATHEAD CO.; COLUMBIA FALLS
ROSEBUD CO.: COLSTRIP / DEER LODGE CO.: ANACONDA

ABSTRACT

THE MONTANA DEPT. OF HEALTH AND ENVIRONMENTAL SCIENCES IS INITIATING A STUDY UNDER HOUSE BILL 250 TO BETTER DEFINE RELATIONSHIPS BETWEEN THE HEALTH OF MONTANA RESIDENTS AND AIR POLLUTION. THE STUDY WILL GENERATE THE TYPE OF INFORMATION NEEDED TO MAKE SOUND DECISIONS CONCERNING THE IMPACTS OF FUTURE COMMUNITY, INDUSTRIAL AND RESOURCE DEVELOPMENT ON HUMAN HEALTH.
THE INFORMATION WILL ALSO HAVE PRACTICAL APPLICATIONS TO LOCAL PLANNING AND DEVELOPMENT ORGANIZATIONS. THE DATA WILL ENABLE THOSE ORGANIZATIONS TO MAKE BETTER ECONOMIC DECISIONS IN TERMS OF IDENTIFYING THE BEST LOCATIONS FOR PROJECTS SUCH AS INDUSTRIAL PARKS OR THE SITING OF LARGE INDUSTRIAL PROJECTS. PROSPECTIVE DEVELOPERS WILL RECEIVE AN ADDITIONAL BENEFIT FROM THE FACT THAT THEY WILL NOT HAVE TO INCUR THE COST OF GATHERING SUCH INFORMATION.
THE STUDY WILL INVESTIGATE THE CORRELATION BETWEEN RESPIRATORY IRRITATION AND LEVELS OF AIR POLLUTION. IT WILL FOCUS ON THREE AREAS OF MONTANA: BUTTE-ANACONDA, MISSOULA AND THE BILLINGS-COAL DEVELOPMENT AREA. IMPORTANT ASPECTS OF THE STUDY INCLUDE: 1. RESEARCHING THE PREVALENCE AND SEVERITY OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND LUNG CANCER; 2. THE MONITORING OF TOTAL SUSPENDED PARTICULATES, SULFUR DIOXIDE, SULFATES AND TRACE ELEMENTS; 3. THE COLLECTION OF METEOROLOGICAL DATA TO DETERMINE SOURCES AND CONCENTRATIONS OF VARIOUS POLLUTANTS; 4. UPDATING THE EMISSION INVENTORY TO DETERMINE THE AMOUNTS AND SOURCES OF POLLUTANTS IN DIFFERENT AREAS. THE MONITORING AND METEOROLOGICAL PROGRAMS WILL GENERATE DATA THAT WILL ALLOW THE DEPARTMENT TO DETERMINE THE TYPE, STRENGTH, DURATION AND SOURCES OF AIR POLLUTION LEVELS., (MEO)

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00000933

PROJECT TITLE

LOWER YELLOWSTONE FISHERIES STUDY

INVESTIGATORS

PAT GRAHAM / ROBERT MARTINKA

RESEARCH INSTITUTION

MONTANA DEPT. OF FISH AND GAME / BOX 430 / MILES CITY, MT

PRIMARY SPONSOR

U.S. BUREAU OF RECLAMATION

SECONDARY SPONSORS

COLORADO INTERSTATE GAS

PRIMARY FUNDING AMOUNT

93,375

SECONDARY FUNDING AMOUNTS

10,000

TIME FRAME

APR. 1974 TO MAR. 1978

LOCATION

MT - LOWER YELLOWSTONE RIVER

ABSTRACT

OBJECTIVES: 1. TO COLLECT BASIC DATA TO DEVELOP A BETTER UNDERSTANDING OF EXISTING FISH POPULATIONS AND THEIR HABITAT REQUIREMENTS; 2. TO ADAPT

EQUIPMENT AND SAMPLING TECHNIQUES TO LARGE RIVER STUDIES; 3. TO DEVELOP METHODS FOR PREDICTING PROPOSED FLOW CHANGES ON IMPORTANT LIFE HISTORY STAGES OF IMPORTANT SPORT FISH. THIS INFORMATION WILL HELP TO ASSESS THE POTENTIAL IMPACT OF WATER WITHDRAWALS ON THE LOWER YELLOWSTONE. (MEO)

REPORTS AND PUBLICATIONS

ANNUAL REPORT TO BUREAU OF RECLAMATION BEING PREPARED. WILL BE AVAILABLE SEPTEMBER 1, 1977.

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00000934

PROJECT TITLE

ENVIRONMENTAL ANALYSIS - ANTELOPE VALLEY STATION

PROJECT NUMBER

6201

RESEARCH INSTITUTION

STEARNS-ROGER, INC. / 925 S. NIAGARA ST. / DENVER, CO
NATIONAL BIOCENTRIC, INC. / 2233 HAMLINE AVE. N / ST. PAUL, MN

PRIMARY SPONSOR

BASIN ELECTRIC POWER COOPERATIVE
DUANE BYE / 1717 E. INTERSTATE AVE. / BISMARCK, ND

PRIMARY FUNDING AMOUNT

APPROXIMATELY 1,000,000

TIME FRAME

JAN. 1976 TO SEPT. 1977

STATUS

COMPLETED SEPT. 1977

LOCATION

ND - MERCER CO.

ABSTRACT

THE ANTELOPE VALLEY STATION ENVIRONMENTAL REPORT CONSISTS OF THREE VOLUMES. IN ADDITION TO A DETAILED PROJECT DESCRIPTION, VOLUME I CONTAINS AN ANALYSIS OF THE PHYSICAL AND BIOLOGICAL EFFECTS OF THE CONSTRUCTION AND OPERATION OF ANTELOPE VALLEY STATION AND ITS ASSOCIATED COTEAU MINE. SECTION 3, EXISTING ENVIRONMENT, PRESENTS INFORMATION ON THE FOLLOWING TOPICS: 1. PHYSIOGRAPHY AND TOPOGRAPHY; 2. GEOLOGY AND GEOLOGIC HAZARDS; 3. MINERAL RESOURCES; 4. SOILS, 5. CLIMATE AND METEOROLOGY; 6. AIR QUALITY; 7. NOISE; 8. HYDROLOGY; 9. AQUATIC ECOLOGY; 10. TERRESTRIAL VEGETATION ECOLOGY; AND 11. TERRESTRIAL ANIMAL ECOLOGY. SECTION 4 DISCUSSES THE IMPACTS AND SECTION 5 THE MITIGATIVE MEASURES FOR THESE SAME TOPICS. THE APPENDIX TO VOLUME I PRESENTS MORE DETAILED DATA ON GEOLOGY, SOILS, AIR QUALITY, A MIXING STUDY IN RENNER BAY, LIMNOLOGICAL INVESTIGATIONS AND BOTH TERRESTRIAL ANIMAL AND VEGETATION ECOLOGY.

VOLUME II PRESENTS AN ANALYSIS OF THE EXISTING HUMAN ENVIRONMENT AND THE POTENTIAL EFFECTS OF COAL DEVELOPMENT PROJECTS IN THE AREA. THE IMPACT ANALYSIS WILL CONSIDER THE CUMULATIVE EFFECTS OF THE CONCURRENT GENERATING PLANTS IN MERCER COUNTY INCLUDING ANTELOPE VALLEY STATION, COYOTE GENERATING STATION, FOUR COAL MINES, AND ONE COAL GASIFICATION PLANT.

VOLUME III ANALYZES THE POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE CONSTRUCTION AND OPERATION OF A HIGH VOLTAGE TRANSMISSION LINE FROM ANTELOPE VALLEY STATION TO HURON, SOUTH DAKOTA AND TWO HIGH VOLTAGE TRANSMISSION LINES FROM ANTELOPE VALLEY STATION TO LELAND OLDS STATION NEAR STANTON, NORTH DAKOTA.

THE TRANSMISSION SYSTEM REPORT ANALYZES PROJECT-ASSOCIATED

REPORTS AND PUBLICATIONS

VOL. I - ANALYSIS OF BIOLOGICAL AND PHYSICAL ENVIRONMENT.
VOL. II - ANALYSIS OF HUMAN ENVIRONMENT.
VOL. III - ANALYSIS OF TRANSMISSION SYSTEM. AVAILABLE FROM BASIN ELECTRIC POWER COOPERATIVE, 1717 E. INTERSTATE AVE., BISMARCK, ND 58501.

EFFECTS UPON BOTH THE NATURAL AND HUMAN ENVIRONMENTS.

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00000935

PROJECT TITLE

BAGHOUSE-NAHCOLITE SULFUR DIOXIDE REMOVAL PROCESS

PROJECT NUMBER

OTPC05121-5000

RESEARCH INSTITUTION

WHEELABRATOR-FRYE, INC.

COORDINATOR

MINNKOTA POWER COOPERATIVE / MONTANA-DAKOTA UTILITIES
NORTHWESTERN PUBLIC SERVICE CO. / BASIN ELECTRIC POWER COOPERATIVE / MINNESOTA POWER & LIGHT CO.

PRIMARY SPONSOR

OTTER TAIL POWER CO.
J. J. SEASHORE / DULUTH, MN

PRIMARY FUNDING AMOUNT

96,000

TIME FRAME

MAY 1974 TO NOV. 1976

LOCATION

SD

ABSTRACT

THE PROJECT OBJECTIVE IS TO EXPLORE THE POSSIBILITY OF USING NAHCOLITE TO EFFECTIVELY REMOVE SO2 FROM BOILER FLUE GAS. A PILOT UNIT WILL BE INSTALLED ON A LIGNITE-FIRED POWER BOILER AND WILL WITHDRAW 'DIRTY' FLUE GAS UPSTREAM OF THE ELECTROSTATIC PRECIPITATOR. THIS PILOT WILL UTILIZE A DRY PULVERIZED NAHCOLITE THAT WILL BE INJECTED INTO THE GAS STREAM UPSTREAM FROM THE BAG FILTER. THE NAHCOLITE, ALONG WITH THE FLY ASH, WILL BE COLLECTED ON THE SURFACE OF THE

BAGS. THIS PILOT WILL BE ABLE TO DETERMINE THE THE RELATIVE EFFECT ON SO2 REMOVAL BY CONTROLLING TEMPERATURE, RETENTION TIME AND STOICHIOMETRIC RATIOS. IF THIS DRY REMOVAL METHOD PROVES TO BE A VIABLE MEANS OF CONTROLLING SO2 EMISSION, IT HAS SEVERAL ADVANTAGES OVER WET REMOVAL SYSTEMS NOW BEING USED: IT WOULD REPLACE BOTH THE ELECTROSTATIC PRECIPITATOR AND SO2 ABSORBER WITH A STANDARD BAGHOUSE FILTER. IT WOULD ALSO ELIMINATE THE NEED TO REHEAT THE FLUE GAS BEFORE IT ENTERS THE STACK, AND ALSO ELIMINATE SLUDGE DISPOAL PROBLEMS AS THE FLY ASH AND NAHCOLITE WOULD BE IN DRY FORM. THE DRY MATERIAL IS, HOWEVER, WATER SOLUBLE SO THIS WOULD HAVE TO BE CONSIDERED IN DETERMINING A SUITABLE DISPOSAL METHOD.

00000936

PROJECT TITLE
A STUDY OF THE SOCIOECONOMIC IMPACTS OF SHERIDAN ENTERPRISES' WELCH 1 MINE

PROJECT NUMBER
76-163

INVESTIGATORS
JEFFERSON PATTERSON

RESEARCH INSTITUTION
PICKERT, BROWNE, COODINGTON & ASSOCIATES, INC. /
100 S. MADISON ST / DENVER, CO 80209

PRIMARY SPONSOR
D'APPALONIA CONSULTING ENGINEERS, INC. / 3525 S.
TAMARAC / DENVER, CO

SECONDARY SPONSORS
SHERIDAN ENTERPRISES, INC.

PRIMARY FUNDING AMOUNT
PROPRIETARY

TIME FRAME
APR. 1977 TO OCT. 1977

LOCATION
WY - SHERIDAN CO.

ABSTRACT
THIS STUDY DETERMINES THE MAJOR SOCIOECONOMIC IMPACTS OF A 1.5 MILLION TON PER YEAR COAL MINE IN SHERIDAN COUNTY, WYOMING. EMPHASIS IS PLACED UPON DEVELOPING PROJECTION SCENARIOS WHICH DELINEATE THE INCREMENTAL EFFECTS OF DEVELOPING OR NOT DEVELOPING THE PROPOSED MINE. SOCIOECONOMIC AREAS ANALYZED INCLUDE EMPLOYMENT, POPULATION, HOUSING, SCHOOL ENROLLMENT, PERSONAL INCOME, RETAIL SALES AND ASSESSED VALUATION.

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00000937

PROJECT TITLE
THE IMPACT OF ENERGY DEVELOPMENT IN THE NORTHERN GREAT PLAINS ON EMPLOYMENT, INCOME, AND POPULATION AND ON LOCAL GOVERNMENT REVENUES AND SERVICES

INVESTIGATORS
LLOYD D. BENDER (MSU) / STANLEY VOELKER (NOSU)
THOMAS STINSON (UNIV. OF MINNESOTA)

RESEARCH INSTITUTION
U.S. DEPT. OF AG., ECONOMIC RESEARCH SERVICE
WASHINGTON, D.C. 20250

PRIMARY SPONSOR
U.S. EPA

SECONDARY SPONSORS
U.S. DEPT. OF AG.

PRIMARY FUNDING AMOUNT
260,000

TIME FRAME
JUNE 1975 TO SEPT. 1980

LOCATION
NORTHERN GREAT PLAINS

ABSTRACT
OBJECTIVE IS TO DETERMINE METHODS OF ESTIMATING POPULATION, EMPLOYMENT, INCOME, LOCAL AND STATE REVENUE FLOWS, LOCAL EXPENDITURES, AND NET FISCAL IMPACTS IN RAPID GROWTH COMMUNITIES IN THE NORTHERN GREAT PLAINS DUE TO COAL MINING AND CONVERSION. (MFO)

STUDY AFFILIATION
PART OF 'ECONOMICS OF COAL AND OILSHALE DEVELOPMENT ON ENVIRONMENTAL QUALITY IN RURAL AREAS.' U.S. EPA, SERIAL NUMBER 00000477, ERIS QUARTERLY REPORT, VOL. I, NO. 3, MAY 1976.

REPORTS AND PUBLICATIONS
LLOYD D. BENDER. LOCAL RURAL COMMUNITY IMPACTS OF COAL MINING IN THE NORTHERN GREAT PLAINS - A PROGRESS REPORT. JOURNAL OF INTERNATIONAL TECHNOLOGY ASSESSMENT, FORTHCOMING ISSUE.
LLOYD D. BENDER AND LINLEY E. JUERS. A RESEARCH PERSPECTIVE ON LOCAL ENERGY DEVELOPMENT IMPACTS. PROCEEDINGS WAEA, RENO, NEVADA. JULY 22, 1975.
LLOYD D. BENDER AND ROBERT I. COLTRANE. ANCILLARY EMPLOYMENT MULTIPLIERS FOR THE NORTHERN PLAINS PROVINCE. PROCEEDINGS WAERC, RENO, NEVADA, JAN. 7-9, 1975.
EUGENE PATRICK LEWIS AND LLOYD D. BENDER. ESTIMATING EMPLOYMENT, MIGRATION, AND INCOME RELATIONSHIPS IN THE NORTHERN GREAT PLAINS. DEPT. OF AG. ECON & ECON., MONTANA STATE UNIV., STAFF PAPER 76-17. JUNE 1976.
LLOYD D. BENDER. PREDICTING EMPLOYMENT IN FOUR REGIONS OF THE WESTERN U.S. USDA ERS TECHNICAL BULLETIN 1529. NOVEMBER 1975.
STANLEY VOELKER. THE NORTH DAKOTA TAX SYSTEM. WORKING PAPER. DEPT. OF AG. ECON., NORTH DAKOTA STATE UNIV. IN PRESS.
THOMAS F. STINSON AND STANLEY VOELKER. MINTX IN PROCESS. (THIS IS A COMPUTER SOFTWARE CAPABILITY. ALL LOCAL AND STATE TAX LIABILITIES FROM A COAL FACILITY FIRM ARE CALCULATED FOR ANY STATE WHEN TAX DATA ARE SUPPLIED TO THE COMPUTER IN AN INTERACTIVE MODE.)
THOMAS F. STINSON AND STANLEY VOELKER. ENGYTX IN PROCESS. (THIS IS A COMPUTER SOFTWARE CAPABILITY FOR MONTANA, NORTH DAKOTA, WYOMING, AND SOUTH DAKOTA. WHEN CHARACTERISTICS OF THE COAL FACILITY ARE SUPPLIED, ALL STATE AND LOCAL TAX FLOWS FROM THE FACILITY OPERATION AND ITS PRIMARY WORKERS ARE CALCULATED.)

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00000938

PROJECT TITLE

ECONOMIC ANALYSIS OF THE IMPACT OF COAL AND OIL SHALE
DEVELOPMENT ON ENVIRONMENTAL QUALITY IN RURAL AREAS

PROJECT NUMBER

42-309

INVESTIGATORS

JOSEPH R. BARSE / JOHN W. GREEN / VIRGIL WHETZEL
MEL SKOLD

RESEARCH INSTITUTION

U.S. DEPT. OF AG., ECONOMIC RESEARCH SERVICE /
500 12TH ST., SW / WASHINGTON, D.C. 20250

PRIMARY SPONSOR

U.S. EPA

SECONDARY SPONSORS

U.S. DEPT. OF AG., ECONOMIC RESEARCH SERVICE

PRIMARY FUNDING AMOUNT

990,000

SECONDARY FUNDING AMOUNTS

200,000

TIME FRAME

JULY 1975 TO SEPT. 1980

LOCATION

NORTHERN GREAT PLAINS AND ROCKY MOUNTAIN STATES

ABSTRACT

THE GENERAL OBJECTIVE OF THIS PROJECT IS TO ASSESS MANY SPECIFIC SOCIO-ECONOMIC IMPACTS AND IMPLICATIONS OF COAL AND OIL SHALE DEVELOPMENT AND TO INTEGRATE THESE SEPARATE ASSESSMENTS INTO AN INTERREGIONAL ANALYTICAL SYSTEM. THE SYSTEM CAN THEN BE USED TO MAKE COMPARATIVE ASSESSMENTS OF ALTERNATIVE PATTERNS OF COAL AND OIL SHALE DEVELOPMENT WHICH MIGHT BE CHOSEN BY PRIVATE DECISION-MAKERS AND PUBLIC POLICY-MAKERS. WORK HAS BEGUN ON THE FOLLOWING TASKS: 1. TO PROVIDE REGIONAL REPORTS ON RESOURCES AVAILABLE TO MEET ALTERNATIVE DEMANDS FOR NEW ENERGY, LAND AND WATER RESOURCES WHICH WOULD BE AFFECTED, AND ECONOMIC IMPLICATIONS FOR AGRICULTURE; 2. TO EVALUATE COSTS OF RECLAIMING MINED LANDS AT SPECIFIC SITES, ASSUMING ALTERNATIVE RECLAMATION TECHNOLOGIES; 3. TO DEVELOP AN ANALYTICAL SYSTEM FOR EVALUATING INTERREGIONAL ECONOMIC IMPLICATIONS AND TRADEOFFS FOR AGRICULTURE AND RURAL AREAS RESULTING FROM COAL DEVELOPMENT; 4. TO ASSESS THE DEMAND FOR WATER FOR ENERGY DEVELOPMENT AND THE COMPETITION FOR WATER BETWEEN AGRICULTURE AND ENERGY USE IN COAL MINING AND PROCESSING. (MEO)

STUDY AFFILIATION

PART OF 'ECONOMICS OF COAL AND OILSHALE DEVELOPMENT ON ENVIRONMENTAL QUALITY IN RURAL AREAS,' U.S. EPA, SERIAL NUMBER 00000477, ERIS QUARTERLY REPORT, VOL. I, NO. 3, MAY 1976.

REPORTS AND PUBLICATIONS

JOHN W. GREEN AND MELVIN D. SKOLD. THE ERS ENERGY PROJECT--INTERREGIONAL COMPETITION MODEL. PAPER PRESENTED AT MEETING OF ECONOMIC STUDIES COMMITTEE, PACIFIC NORTHWEST RIVER BASIN COMMISSION, PORTLAND, OREGON. MAY 19-20, 1976.

LINLEY E. JUERS AND KENNETH LEATHERS. DIRECT COSTS OF RECLAIMING SURFACE-DISTURBED MINING LANDS OF THE WESTERN STATES: A RESEARCH PROSPECTUS. UNPUBLISHED REPORT, ERS, NRED, FORT COLLINS, CO. DECEMBER 1975.

JOHN R. SCHAUB ET AL. RESEARCH PROGRAM ON THE ECONOMIC AND SOCIAL CONSEQUENCES OF COAL AND OIL SHALE DEVELOPMENT. PAPER PRESENTED AT THE EPA CONFERENCE ON HEALTH, ENVIRONMENTAL EFFECTS, AND CONTROL TECHNOLOGY OF ENERGY USE, WASHINGTON, D.C. FEBRUARY 9-11, 1976.

EDWARD W. SPARLING AND MELVIN D. SKOLD. NORTHERN GREAT PLAINS ENERGY DEVELOPMENTS AND WATER USE REQUIREMENTS. PAPER PRESENTED AT CONFERENCE ON CONFLICTS AND ISSUES IN WATER QUALITY AND USE, WATER RESOURCE COMMITTEE, GREAT PLAINS AGRICULTURAL COUNCIL, DENVER, CO. MAY 7-8, 1976.

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00000939

PROJECT TITLE

PROJECTIONS OF MONTANA COAL MINING AND ENERGY CONVERSION
DEVELOPMENT

INVESTIGATORS

ARNOLD SILVERMAN / THOMAS M. POWER (UNIV. OF MONTANA)
RICHARD STROUP (MONTANA STATE UNIV.)

RESEARCH INSTITUTION

UNIVERSITY OF MONTANA / MISSOULA, MT 59801
MONTANA STATE UNIV. / BOZEMAN, MT 59715

PRIMARY SPONSOR

NATIONAL SCIENCE FOUNDATION, RANN

PRIMARY FUNDING AMOUNT

37,020

TIME FRAME

MAY 1975 TO APR. 1976

LOCATION

MT AND ADJACENT AREAS OF THE FORT UNION BASIN

ABSTRACT

THIS STUDY WILL PROJECT PROBABLE LEVELS OF COAL DEVELOPMENT IN MONTANA AND ADJACENT AREAS OF THE FORT UNION BASIN OVER THE NEXT 10, 15, AND 25 YEARS. THIS INFORMATION IS NEEDED BY THE SOCIAL AND ECONOMIC RESEARCHERS WHO ARE ATTEMPTING TO DETERMINE THE IMPACT OF INCREASED POPULATION AND INDUSTRIALIZATION ON THE ECONOMIC, SOCIAL AND POLITICAL ORGANIZATION OF EASTERN MONTANA AND IN

FACT BY OTHER PROBLEM AREA WORKGROUPS AS WELL. THE BASE DATA FROM WHICH PROJECTIONS OF POSSIBLE LEVELS OF MONTANA/FORT UNION COAL DEVELOPMENT WILL PROCEED ARE THE CONTRACTS COAL COMPANIES OPERATING IN THIS REGION HAVE ALREADY SIGNED. PROJECTIONS BEYOND THESE LEVELS WILL BE BASED ON THE FOLLOWING STUDIES: 1. THE DEMAND FOR ELECTRICITY; 2. ALTERNATIVE ENERGY SOURCES FOR ELECTRIC GENERATION; 3. PRICE AND AVAILABILITY OF NATURAL GAS; 4. OTHER COAL SOURCES; AND 5. COAL AS A RAW MATERIAL FOR THE PRODUCTION OF OTHER ENERGY FORMS AND RELATED MATERIALS. (MEO)

STUDY AFFILIATION

PART OF 'THE IMPACT OF COAL DEVELOPMENT IN THE FORT UNION BASIN, MONTANA AND NEIGHBORING STATES,' NATIONAL SCIENCE FOUNDATION, SERIAL NUMBER 00000153, FRIS QUARTERLY REPORT, VOL. I, NO. I, NOVEMBER 1975.

REPORTS AND PUBLICATIONS

PROJECTIONS OF NORTHERN GREAT PLAINS COAL MINING AND ENERGY CONVERSION DEVELOPMENT, 1975-2000 A.D. MONTANA UNIVERSITY COAL DEMAND STUDY TEAM. FINAL REPORT. MAY 1976.

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00000940

PROJECT TITLE

SOCIOECONOMIC IMPACT OF THE MHD-CDIF (TASK 5)

INVESTIGATORS

KAREN BARCLAY / TOM PELLETIER / GARY FISCHER

RESEARCH INSTITUTION

MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BOX 3809 / BUTTE, MT 59701

PRIMARY SPONSOR

U.S. ERDA, MHD DIV. OF FOSSIL ENERGY

PRIMARY FUNDING AMOUNT

FUNDING FOR THIS TASK INCLUDED IN MERDI MHD PROJECT.

TIME FRAME

JUNE, 1977 TO CONTINUING

LOCATION

MT - SILVER BOW CO.; BUTTE

ABSTRACT

THE COMPONENT DEVELOPMENT AND INTEGRATION FACILITY (CDIF). A 50 MWT COAL-FIRED, OPEN CYCLE MHD FACILITY CURRENTLY IS UNDER CONSTRUCTION IN THE INDUSTRIAL PARK AT BUTTE, MONTANA. IN STUDYING THE ENVIRONMENTAL EFFECTS OF THE CDIF, A MAJOR CONCERN IS THE SOCIAL AND ECONOMIC IMPACT ON THE COMMUNITY OF BUTTE. THE OBJECTIVE OF THE SOCIOECONOMIC STUDY IS TO IDENTIFY AND MONITOR THE IMPACTS OF THE CDIF CONSTRUCTION AND OPERATION ON THE BUTTE AREA. IN THIS PART OF THE STUDY, WE PROVIDE THE NECESSARY BASELINE DATA OF THE CDIF SPECIFICATIONS TO CARRY OUT THAT OBJECTIVE. (MEO)

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00000941

PROJECT TITLE

METHODS DEVELOPMENT FOR ASSESSING TRADEOFFS IN ENVIRONMENTAL MANAGEMENT

INVESTIGATORS

THOMAS D. CROCKER / RALPH C. D'ARGE (UNIV. OF WYOMING)
SHAUL BEN-DAVID / ALLEN V. KNEESE / WILLIAM SCHULZE (UNIV. OF NEW MEXICO)

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF ECONOMICS / LARAMIE, WY 82071

PRIMARY SPONSOR

U.S. EPA

SECONDARY SPONSORS

UNIV. OF WYOMING / LARAMIE, WY 82071
UNIV. OF NEW MEXICO

PRIMARY FUNDING AMOUNT

611,000

SECONDARY FUNDING AMOUNTS

32,612 (UW)
9,702 (UNM)

TIME FRAME

OCT. 1976 TO OCT. 1979

LOCATION

WY - ALBANY CO.

ABSTRACT

THE RESEARCH DELINEATED IN THIS PROPOSAL IS A COORDINATED EFFORT TO IMPROVE ENVIRONMENTAL DECISION-MAKING THROUGH DEVELOPMENT AND TESTING OF NEW MEASUREMENT AND ASSESSMENT METHODS. THE EFFORT WILL CONCENTRATE ON IMPROVING BENEFIT MEASUREMENT METHODOLOGIES IN THREE GENERAL AREAS: ENVIRONMENTAL HEALTH, ENVIRONMENTAL AMENITIES AND RECREATION, AND THE EFFECTS OF ENVIRONMENTAL POLLUTION ON PRODUCTIVITY WITHIN THE UNITED STATES ECONOMY. WITHIN THESE GENERAL AREAS, SPECIFIC STUDIES WILL BE UNDERTAKEN TO DEVELOP IMPROVED THEORETICAL STRUCTURES FOR ESTIMATING BENEFITS AND TRADEOFFS. THESE IMPROVED MODELS WILL THEN BE EMPIRICALLY TESTED AND ANALYZED AS TO THEIR VALUE IN ENVIRONMENTAL DECISION-MAKING. IT IS ANTICIPATED THAT IN EACH AREA TWO OR MORE COMPETING THEORETICAL APPROACHES WILL BE TESTED AND COMPARED. IN ADDITION TO THE IMPROVEMENT AND TESTING OF BENEFIT AND ENVIRONMENTAL TRADEOFF RELATIONSHIPS, AN EVALUATION OF DECISION METHODOLOGIES INCLUSIVE OF THE VALUE OF TRADEOFF INFORMATION UTILIZING THE SPECIFIC STUDIES WILL BE UNDERTAKEN.

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00000942
PROJECT TITLE
ECONOMIC CONDITIONS WORK GROUP - WEST CENTRAL ND REGIONAL EIS. 'SOCIOECONOMIC IMPACTS ASSOCIATED WITH ENERGY DEVELOPMENT IN NORTH DAKOTA.'
PROJECT NUMBER
YA-512-CT6-219
INVESTIGATORS
LOREN CABE / N. E. TOMAN (BLM STAFF) / BECKY LEE /
DAN SWEENEY / CLARYCA SHETTLER (STATE OF NORTH DAKOTA)
R. COON / N. DALSTED / L. LEISTRITZ (ND STATE UNIV.)
RESEARCH INSTITUTION
NORTH DAKOTA STATE UNIV., INST. FOR REGIONAL STUDIES
FARGO, ND 58102
COOPERATOR
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM (REAP) / PROVIDENT LIFE BLDG / BISMARCK, ND 58501
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT / 222 N. 32ND ST
BILLINGS, MT 59101
SECONDARY SPONSORS
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
10,000
SECONDARY FUNDING AMOUNTS
192,000 (AMOUNT OF OVERALL FUNDING. NO SPECIFIC SUB-PROJECT FUNDING AVAILABLE.)
TIME FRAME
JULY 1976 TO JAN. 1977
LOCATION
ND - BURLEIGH CO.: REGAN, WING, BISMARCK-MANDAN / DUNN CO.: KILLDEER, DUNN CENTER, HALLIDAY, DODGE / MCLEAN CO.: GARRISON, MAX, RUSO, BUTTE, TURTLE LAKE, MERCER, UNDERWOOD, WASHBURN, WILTON, FALKIRK / MERCER CO.: GOLDEN VALLEY, ZAP, BEULAH, PICK CITY, HAZEN, STANTON / MORTON CO.: HEBRON, GLEN ULLIN, NEW SALEM, ALMONT, FLASHER / OLIVER CO.: CENTER / STARK CO.: BELFIELD, DICKINSON, GLADSTONE, TAYLOR, RICHARDTON
ABSTRACT
THE STUDY FORECASTED THE POPULATION, EMPLOYMENT, INCOME AND FISCAL BALANCE OF SEVEN COUNTIES AND 34 MUNICIPALITIES IN WEST CENTRAL NORTH DAKOTA AS A RESULT OF PROPOSED ENERGY DEVELOPMENT THROUGH 1999. THE FORECASTS OF THE FOUR ITEMS LISTED ABOVE WERE PRESENTED BY 'LEVEL' OF ENERGY DEVELOPMENT (LEVEL 1, LEVEL 2, LEVEL 3). THE BASIC ANALYTICAL TOOLS USED WERE: 1. COHORT-SURVIVAL DEMOGRAPHIC MODEL; 2. GRAVITY MODEL; 3. INPUT-OUTPUT MODEL; 4. FISCAL IMPACT MODEL.
STUDY AFFILIATION
PART OF 'WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT,' U.S. BUREAU OF LAND MANAGEMENT AND OLD WEST REGIONAL COMMISSION. SERIAL NUMBER 00000541. ERIS PROJECTS REPORT, VOL. II, NO. 1, JANUARY, 1977.
REPORTS AND PUBLICATIONS
THIS REPORT WILL BE USED AS SUPPLEMENTARY DATA FOR ONE REPORT ON FILE IN MONTANA STATE OFFICE-BLM, BILLINGS. MOST PERTINENT DATA IS PRESENTED IN PRELIMINARY DRAFT INPUT INTO ND EIS BY ECONOMIC CONDITIONS WORK GROUP OF WEST CENTRAL NORTH DAKOTA REGIONAL EIS.

00000943
PROJECT TITLE
AN ECONOMIC STUDY RELATING TO THE DECKER COAL COMPANY MINE PROPOSALS
INVESTIGATORS
DR. PAUL E. POLZIN
RESEARCH INSTITUTION
UNIV. OF MONTANA, BUREAU OF BUSINESS & ECONOMIC RESEARCH
MISSOULA, MT 59801
PRIMARY SPONSOR
DECKER COAL CO.
PRIMARY FUNDING AMOUNT
6,500
TIME FRAME
JULY 1975 TO OCTOBER 1975
LOCATION
MT - BIG HORN CO.; ROSEBUD CO.; / WY - SHERIDAN CO.
ABSTRACT
THREE COUNTIES SURROUNDING THE PROPOSED NORTH EXTENSION AND EAST DECKER MINES WERE DEFINED AS THE LOCAL ECONOMIC IMPACT AREA; THEY ARE BIG HORN AND ROSEBUD COUNTIES IN MONTANA, AND SHERIDAN COUNTY IN THE EXTREME NORTHERN PORTION OF WYOMING. THE MAJORITY OF THE ECONOMIC IMPACTS ARE PROJECTED TO OCCUR IN THE CITY OF SHERIDAN IN SHERIDAN COUNTY, THE TRADE AND SERVICES CENTER FOR THE REGION AND LOCATED WITHIN 30 MILES OF BOTH PROJECTS.
THE PROPOSED DECKER MINES WILL CREATE DIRECT EMPLOYMENT FOR BASIC WORKERS (MINERS, RAILROAD EMPLOYEES, CONSTRUCTION WORKERS), AS WELL AS RESULT IN THE CREATION OF ADDITIONAL DERIVATIVE JOBS BY AN INCREASE IN THE DEMAND FOR SERVICES AND GOODS. WHEN MEASURED IN TERMS OF EMPLOYMENT, THE MAXIMUM IMPACT OF THE PROPOSED DECKER MINES IS PROJECTED FOR 1980, WHEN THERE WILL BE BETWEEN 792 AND 962 ADDITIONAL EMPLOYMENT OPPORTUNITIES.
THE REMOVAL FROM AGRICULTURAL PRODUCTION OF APPROXIMATELY 6,300 ACRES BY FENCING BY THE DECKER COAL COMPANY IS PROJECTED TO REDUCE THE TOTAL OUTPUT OF FARMS AND RANCHES IN THE AREAS, ALTHOUGH THE ADVERSE ECONOMIC IMPACT OF THIS ACTION IS EXPECTED TO BE RELATIVELY MINOR.
THE STATE OF MONTANA AND LOCAL GOVERNMENTS IN THE MONTANA

PORTION OF THE IMPACT AREA ARE PROJECTED TO HAVE SIZABLE REVENUE SURPLUSES FROM THE PROPOSED DECKER MINES. GOVERNMENTS IN WYOMING, HOWEVER, WILL PROBABLY EXPERIENCE DEFICITS, AS THE INCREASE IN OPERATING EXPENDITURES FAR EXCEED THE GROWTH IN REVENUES. THIS RESEARCH IS ADMINISTERED BY THE MONTANA DEPARTMENT OF STATE LANDS WITH DECKER COAL COMPANY FUNDS. (MEO)

STUDY AFFILIATION
PART OF 'DECKER EIS STUDY.'

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00000944

PROJECT TITLE
POPULATION ESTIMATES OF SOUTHEASTERN MONTANA

PROJECT NUMBER
0064569; MONP00463

INVESTIGATORS
P. C. JOBES

RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF SOCIOLOGY
BOZEMAN, MT 59715

COORDINATOR
MONTANA STATE UNIV., AG. EXP. STATION / BOZEMAN, MT 59715

PRIMARY SPONSOR
U.S. DEPT. OF AGRICULTURE, COOP. STATE RESEARCH SERVICE
BOZEMAN, MT 59715

TIME FRAME
JULY 1974 TO JUNE 1975

LOCATION
MT - BIG HORN CO.; POWDER RIVER CO.; ROSEBUD CO.;
YELLOWSTONE CO.

ABSTRACT
OBJECTIVE: PROVIDE PRELIMINARY POPULATION PROJECTIONS OF SIZE COMPOSITION AND DISTRIBUTION IN FOUR COUNTIES IN SOUTHEASTERN MONTANA, IN ASSOCIATION WITH LOCAL MINING AND CONSTRUCTION DEVELOPMENT.
APPROACH: EXPLORE SECONDARY DATA SOURCES UTILIZING WHELPTON'S COMPONENTS OF POPULATION METHOD. IT PROVIDES A RANGE OF PROJECTIONS; TAKES INTO ACCOUNT DEMOGRAPHIC CHANGES RESPONSIBLE FOR POPULATION GROWTH; IS INTUITIVELY EASY TO COMPREHEND BY POTENTIAL USERS. EXPLORE ADDITIONAL DATA SOURCES BY COMMUNICATION WITH DEVELOPING COMPANIES. KEYPUNCHING, COMPUTER USE, ANALYSIS AND WRITE-UP.
PROGRESS: FIRST, A REVIEW OF LITERATURE DEALING WITH POPULATION ESTIMATES IN RAPIDLY GROWING AREAS HAS BEEN UNDERWAY IN ORDER TO ASCERTAIN THE MOST SUITABLE ESTIMATING PROCEDURES FOR THE ANALYSIS. SECOND, INTERVIEWS HAVE BEEN TAKEN FROM SEVERAL MAJOR DECISION MAKERS WHO HAVE KNOWLEDGE CONCERNING FUTURE DEVELOPMENT IN COAL DEVELOPMENT IN SOUTHEASTERN MONTANA AS WELL AS THE INFLUENCE TO AFFECT FUTURE GROWTH. THIRD, LIASON HAS BEEN ESTABLISHED WITH THE UNIVERSITY OF MONTANA WHICH IS OPERATING A FIELD STATION IN COLSTRIP, MONTANA. THIS STATION WILL BE AVAILABLE FOR THIS RESEARCH WHEN THE PROJECT PROCEEDS TO THE FIELD.

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00000945

PROJECT TITLE
ENERGY REGULATION AND TECHNOLOGICAL CHANGE

PROJECT NUMBER
OEP 74-07918 A01

INVESTIGATORS
RICHARD NEHRING / BEN ZYCHER / JOE WHARTON / FRED HOFFMAN

RESEARCH INSTITUTION
THE RAND CORPORATION / 1700 MAIN ST / SANTA MONICA, CA 90406

PRIMARY SPONSOR
NATIONAL SCIENCE FOUNDATION

SECONDARY SPONSORS
THE RAND CORPORATION

PRIMARY FUNDING AMOUNT
65,000

SECONDARY FUNDING AMOUNTS
70,000

TIME FRAME
NOV. 1973 TO AUG. 1976

LOCATION
MT WY ND

ABSTRACT
THIS STUDY WAS DESIGNED TO: 1. PROVIDE A BASIC FRAMEWORK FOR UNDERSTANDING THE INTERACTION BETWEEN MAJOR ENERGY SUPPLY INNOVATIONS AND GOVERNMENT REGULATION; 2. DESCRIBE THE CHARACTERISTICS AND DEVELOPMENT OF THE NORTHERN GREAT PLAINS COAL RESOURCES; 3. DESCRIBE THE ADVERSE EFFECTS OF COAL DEVELOPMENT AND EXISTING FEDERAL AND STATE REGULATION AFFECTING THEM; AND 4. TO DEFINE POSSIBLE STATE AND FEDERAL REGULATORY ROLES IN NORTHERN GREAT PLAINS COAL DEVELOPMENT. (MEO)

REPORTS AND PUBLICATIONS
RICHARD NEHRING ET AL. COAL DEVELOPMENT AND GOVERNMENT REGULATION IN THE NORTHERN GREAT PLAINS: A PRELIMINARY REPORT. PREPARED IN PART UNDER A GRANT FROM THE NATIONAL SCIENCE FOUNDATION, R-1981-NSF/RC. AUGUST 1976. AVAILABLE FROM THE RAND CORPORATION, SANTA MONICA, CA.

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00000946

PROJECT TITLE
A SOCIO-ECONOMIC STUDY OF THE PROPOSED SHELL OIL COMPANY PEARL MINE

INVESTIGATORS
DR. LAUREN MCKINSEY / JAMES H. NYBO / ANNE S. WILLIAMS
PATRICK JOBES / DAVID C. WILLIAMS / JAMES BOYER
RESEARCH INSTITUTION
THE MEADOWLARK GROUP / BOX 1050 / HELENA, MT 59601
COORDINATOR
U.S. DEPT. OF AG., ECONOMIC RESEARCH SERVICE
PRIMARY SPONSOR
MONTANA DEPT. OF STATE LANDS / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
28,900
TIME FRAME
SEPT. 1977 TO JAN. 1978
LOCATION
MT - BIG HORN CO.; WY - SHERIDAN CO.
ABSTRACT

THIS IS A STUDY PURSUANT TO THE DEVELOPMENT OF AN ENVIRONMENTAL IMPACT STATEMENT BY THE DEPARTMENT OF STATE LANDS ON THEIR ACTION RELATING TO SHELL OIL CO.'S PROPOSAL TO OPEN THE 'PEARL' MINE IN BIG HORN COUNTY. THE STUDY HAS TWO PRIMARY ASPECTS: 1. QUANTIFY AND QUALITATIVELY DISCUSS THE HUMAN IMPACTS ON THE LOCAL AREA IMPACT REGION ASSOCIATED WITH THE MINE. 2. EXPLORE AND FORMULATE POSSIBLE GROWTH MANAGEMENT STRATEGIES AVAILABLE TO MINIMIZE, MITIGATE, AND AVOID THE ADVERSE EFFECTS OF MAJOR ENERGY DEVELOPMENT IN A SPARSELY POPULATED RURAL REGION OF MONTANA OR WYOMING. (MEO)

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00000947
PROJECT TITLE
STUDY OF SOCIAL STRUCTURE AND SERVICE IMPACT OF PROPOSED EXPANSION OF DECKER COAL COMPANY STRIP MINE OPERATIONS
INVESTIGATORS
RAYMOND L. GOLD (UNIV. OF MONTANA) / JOHN S. FITZPATRICK (MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION)
RESEARCH INSTITUTION
UNIV. OF MONTANA, INST. FOR SOCIAL SCI. RESEARCH
MISSOULA, MT 59801
COORDINATOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
PRIMARY SPONSOR
MONTANA DEPT. OF STATE LANDS / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
18,000
TIME FRAME
JULY 1975 TO OCT. 1975
STATUS
COMPLETED OCT. 1975
LOCATION
MT - DECKER AREA; WY - SHERIDAN AREA
ABSTRACT

THE RESEARCH WAS DESIGNED TO PROVIDE AN OBJECTIVE AND IMPARTIAL VIEW OF THE AREA WHERE SOCIAL STRUCTURE, WAY OF LIFE, AND COMMUNITY SERVICES ARE LIKELY TO BE IMPACTED BY EXPANSION OF MINING OPERATIONS AT DECKER, MONTANA. THE PRINCIPAL STUDY AREA WAS SHERIDAN, WYOMING WHERE THE IMPACT OF MINE EXPANSION WILL BE FAR GREATER THAN ON OTHER COMMUNITIES. A QUESTIONNAIRE WAS ADMINISTERED TO RANDOMLY SELECTED RESPONDENTS, AND VARIOUS REPRESENTATIVE LOCALS WERE IDENTIFIED AND INTERVIEWED IN-DEPTH. (MEO)

REPORTS AND PUBLICATIONS
SOCIAL IMPACT TECHNICAL APPENDIX: STUDY OF SOCIAL STRUCTURE AND SERVICE IMPACT OF PROPOSED EXPANSION OF DECKER COAL COMPANY STRIP MINE OPERATIONS.
STUDY OF SOCIAL STRUCTURE AND SERVICE IMPACT OF PROPOSED EXPANSION OF DECKER COAL COMPANY STRIP MINE OPERATIONS: A SUMMARY.

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00000948
PROJECT TITLE
RESOURCE TAXATION, TAX EXPORTATION AND REGIONAL ENERGY POLICIES
INVESTIGATORS
ROBERT SHELTON / WILLIAM MORGAN
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. FOR POLICY RESEARCH / LARAMIE, WY
UNIV. OF WYOMING, DEPT. OF ECONOMICS / LARAMIE, WY 82071
PRIMARY SPONSOR
UNIV. OF WYOMING / LARAMIE, WY 82071
TIME FRAME
JUNE 1976 TO JAN. 1977
LOCATION
WY AZ CO MT NM UT
ABSTRACT

THE PURPOSE OF THIS STUDY WAS TO ANALYZE ENERGY POLICIES AND NATURAL RESOURCE TAXATION FOR THE STATES IN THE ROCKY MOUNTAIN REGION. THE STUDY MADE SPECIFIC REFERENCE TO COAL, SINCE THE CURRENT AND POTENTIAL FUTURE COAL SITUATION IN THE REGION PROVIDED AN EXCELLENT CASE FOR THE EXAMINATION OF ALTERNATIVE STATE ECONOMIC OBJECTIVES AND PROVIDED A BASIS FOR THE ANALYSIS OF VARIOUS PUBLIC POLICIES THAT COULD BE USED TO ATTAIN THE OBJECTIVES. THE STUDY FOCUSED ON TAXATION RATHER THAN PUBLIC EXPENDITURE POLICIES AS THE PRIMARY MEANS OF ATTAINING STATE OBJECTIVES. THE RATIONALE FOR COAL SEVERANCE TAXES WAS ANALYZED ASSUMING ALTERNATIVE OBJECTIVES FOR THE STATES IN THE ROCKY MOUNTAIN REGION AND TAKING INTO ACCOUNT THE STATES' DIFFERENT DEMAND AND SUPPLY CONDITIONS. ONE IMPORTANT ISSUE THAT WAS CONSIDERED IS WHETHER

THE STATES SHOULD HARMONIZE COAL SEVERANCE TAXATION. (MEO)

REPORTS AND PUBLICATIONS

WILLIAM MORGAN AND ROBERT SHELTON. NATURAL RESOURCE TAXATION, TAX EXPORTATION, AND THE STABILITY OF FISCAL FEDERALISM. PUBLIC GOODS AND PUBLIC POLICY, ED. BY TODD SANDLER, ET AL. HALSTED PRESS DIVISION, JOHN WILEY AND SONS. FORTHCOMING.

WILLIAM MORGAN AND ROBERT SHELTON. RESOURCE TAXATION, TAX EXPORTATION AND REGIONAL ENERGY POLICIES. JOURNAL OF NATURAL RESOURCES. FORTHCOMING.

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00000949

PROJECT TITLE

LIMA AND SIAM IMPACT ASSESSMENT MODELS TEST

INVESTIGATORS

GEORGE PICCAGLI / ROBERT KIMBLE / SUE ADAMS

RESEARCH INSTITUTION

UNIV. OF WYOMING, INST. FOR POLICY RESEARCH / BOX 3925
UNIVERSITY STATION / LARAMIE, WY 82071

PRIMARY SPONSOR

U.S. ERDA, BATTELLE PACIFIC NW LAB. / BATTELLE BLVD.
RICHLAND, WA 99352

PRIMARY FUNDING AMOUNT

25,000

TIME FRAME

MAY 1977 TO NOV. 1977

LOCATION

MT - ROSEBUD CO., POWDER RIVER CO., BIG HORN CO.
WY - SHERIDAN CO., CAMPBELL CO., CONVERSE CO., JOHNSON CO., SWEETWATER CO.

ABSTRACT

DATA ON SIXTY-FIVE SOCIAL INDICATORS IS BEING GATHERED IN THE POWDER RIVER BASIN OF MONTANA AND WYOMING AND IN SWEETWATER COUNTY, WYOMING. THE DATA WILL BE UTILIZED TO TEST THE LOCAL IMPACT MANAGEMENT AND ASSESSMENT MODEL (LIMA) AND THE SOCIAL IMPACT ASSESSMENT AND MANAGEMENT MODEL (SIAM). (MEO)

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00000950

PROJECT TITLE

DRAFT EIS REGIONAL SOCIOECONOMIC IMPACT ANALYSIS--SOUTHWEST AND SOUTH CENTRAL WYOMING

PROJECT NUMBER

76-123

INVESTIGATORS

E. F. HARVEY / T. D. BROWNE / H. ZEID

RESEARCH INSTITUTION

BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 S. MADISON ST. / DENVER, CO 80209

COOPERATOR

ABT ASSOCIATES / 55 WHEELER ST / CAMBRIDGE, MA 02138

PRIMARY SPONSOR

U.S. BUREAU OF LAND MANAGEMENT / 2120 CAPITAL AVE.
BOX 1828 / CHEYENNE, WY 82001

PRIMARY FUNDING AMOUNT

14,000

TIME FRAME

JUNE 1976 TO MAR. 1977

LOCATION

WY - LINCOLN CO., UINTA CO., SWEETWATER CO., CARBON CO.
SOUTH CENTRAL AND SOUTHWEST BLM REGIONS IN WYOMING

ABSTRACT

THE PURPOSE OF THIS RESEARCH EFFORT IS TO PROJECT THE SOCIOECONOMIC IMPACTS OF A NUMBER OF PROPOSED COAL DEVELOPMENTS CONSIDERED UNDER THE BLM'S EMARS PROGRAM. THIS STUDY INCLUDED TWO COMPONENTS: THE SOUTH CENTRAL AND SOUTHWESTERN WYOMING BLM REGIONS. BASELINE PROJECTIONS WERE DEVELOPED AND THE EFFECTS OF THE PROPOSED COAL MINES WERE SUPERIMPOSED UPON THEM. ALL SOCIOECONOMIC ASPECTS IN THE TWO REGIONS WERE EXAMINED.

REPORTS AND PUBLICATIONS

DRAFT EIS COMPONENTS: SOUTHWEST WYOMING COAL DEVELOPMENT. ABT ASSOCIATES, CONTRACT WYA 512-CT7-5, BLM. MARCH 1, 1977.

DRAFT EIS COMPONENTS: SOUTH CENTRAL WYOMING COAL DEVELOPMENT. ABT ASSOCIATES, CONTRACT WYA 512-CT7-5, BLM. MARCH 1, 1977. NOT AVAILABLE AT PRESENT.

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00000951

PROJECT TITLE

SOCIOECONOMIC MONITORING OF THE BLACK THUNDER COAL MINE

PROJECT NUMBER

77-130

INVESTIGATORS

E. F. HARVEY

RESEARCH INSTITUTION

BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 S. MADISON ST. / DENVER, CO 80209

PRIMARY SPONSOR

ATLANTIC-RICHFIELD CO., ENVIRONMENTAL SERVICES
1616 GLENARM PLACE / DENVER, CO

PRIMARY FUNDING AMOUNT

PROPRIETARY

TIME FRAME

SEPT. 1977 TO AUG. 1978

LOCATION
WY - CAMPBELL CO.
ABSTRACT
THE PURPOSE OF THIS STUDY IS TO MONITOR THE SOCIOECONOMIC IMPACTS OF THE BLACK THUNDER COAL MINE IN CAMPBELL COUNTY, WYOMING. THE OBJECTIVES INCLUDE: 1. COMPARISON OF ACTUAL IMPACTS WITH PROJECTIONS; 2. COMPARISON OF ACTUAL IMPACTS WITH MITIGATION EFFORTS; 3. IDENTIFICATION OF FUTURE SOCIOECONOMIC MITIGATION MEASURES; AND 4. COMPILATION OF CAMPBELL COUNTY SOCIOECONOMIC DATA ON A CONTINUING BASIS. THE METHODOLOGY FOR COMPLETING THIS STUDY IS PRIMARILY DATA COLLECTION AMONG VARIOUS LOCAL DATA SOURCES. THESE DATA WILL BE ANALYZED TO ISOLATE THE BLACK THUNDER MINE IMPACTS FROM OTHER COAL DEVELOPMENTS NEARBY. THIS REPORT WILL BE PRODUCED SEMI-ANNUALLY; THE FIRST WILL BE PUBLISHED BY YEAR-END 1977.

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00000952
PROJECT TITLE
ANALYSIS OF SOCIOECONOMIC MITIGATION MEASURES FOR THE RAWLINS AREA
PROJECT NUMBER
77-74
INVESTIGATORS
D. W. DONALD
RESEARCH INSTITUTION
RICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 S. MADISON ST. / DENVER, CO 80209
PRIMARY SPONSOR
ROCKY MOUNTAIN ENERGY CO. / 4704 HARLAN / DENVER, CO 80212
PRIMARY FUNDING AMOUNT
PROPRIETARY
TIME FRAME
JUNE 1977 TO OCT. 1977
LOCATION
WY - CARBON CO.; RAWLINS
ABSTRACT
THE PURPOSE OF THIS RESEARCH IS TO ASSIST LOCAL PLANNING ORGANIZATIONS IN DEVELOPING AN APPROACH TO MITIGATING NEGATIVE SOCIOECONOMIC IMPACTS STEMMING FROM NEARBY COAL AND URANIUM DEVELOPMENT. THE TWO PRIMARY OBJECTIVES WERE: 1. TO PLACE THE TOWN OF RAWLINS, WYOMING IN PERSPECTIVE WITH OTHER WYOMING BOOM TOWNS; AND 2. TO IDENTIFY MEASURES AND APPROACHES FOR AMELIORATING NEGATIVE SOCIOECONOMIC IMPACTS. THE RESEARCH METHODOLOGY CONSISTED OF PRIMARY DATA COLLECTION IN A NUMBER OF WYOMING COMMUNITIES, AND INTERVIEWS WITH LOCAL, STATE AND FEDERAL GOVERNMENT OFFICIALS. THIS REPORT IS IN FINAL STAGES OF DRAFT REVIEW.

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00000953
PROJECT TITLE
A SOCIOECONOMIC ASSESSMENT OF THE WILDCAT COAL MINE
PROJECT NUMBER
76-111
INVESTIGATORS
T. D. BROWNE
RESEARCH INSTITUTION
RICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 S. MADISON ST. / DENVER, CO 80209
PRIMARY SPONSOR
D'APPALONIA CONSULTING ENG. / 3525 S TAMARAC / DENVER, CO
GULF OIL, ENERGY & MIN. DIV. / 1720 S BELLAIRE / DENVER, CO
PRIMARY FUNDING AMOUNT
PROPRIETARY
TIME FRAME
MAY 1977 TO NOV. 1977
LOCATION
WY - CAMPBELL CO.
ABSTRACT
THIS STUDY IS A SOCIOECONOMIC IMPACT ANALYSIS FOR A TEN MILLION TON PER YEAR COAL MINE IN CAMPBELL COUNTY, WYOMING. A BASELINE CASE IS DEVELOPED ASSUMING ALL OTHER PLANNED COAL MINES IN THE POWDER RIVER BASIN. THE WILDCAT IMPACTS ARE DEVELOPED AND ANALYZED INCREMENTALLY. A PUBLIC SECTOR FINANCIAL ANALYSIS IS INCLUDED ALONG WITH AN EXAMINATION OF ALL SOCIOECONOMIC FACTORS.

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00000954
PROJECT TITLE
A SOCIOECONOMIC IMPACT ANALYSIS OF THE COAL CREEK COAL MINE
PROJECT NUMBER
77-57
INVESTIGATORS
T. D. BROWNE / E. F. HARVEY
RESEARCH INSTITUTION
RICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 S. MADISON ST. / DENVER, CO 80209
PRIMARY SPONSOR
ATLANTIC-RICHFIELD CO., COAL OPERATIONS DIV.
1616 GLENARM PLACE / DENVER, CO
PRIMARY FUNDING AMOUNT
PROPRIETARY
TIME FRAME
JUNE 1977 TO DEC. 1977

LOCATION
WY - CAMPBELL CO.
ABSTRACT

THIS STUDY IS A COMPREHENSIVE SOCIOECONOMIC IMPACT ANALYSIS OF THE COAL CREEK COAL MINE PROPOSED FOR CAMPBELL COUNTY, WYOMING. THIS STUDY WILL SERVE AS INPUT TO A WYOMING INDUSTRIAL SITING COUNCIL APPLICATION. BASELINE SOCIOECONOMIC PROJECTIONS AND IMPACTS ARE DERIVED AND THE INCREMENTAL IMPACTS OF THE COAL CREEK MINE ARE SUPERIMPOSED. THIS RESEARCH ADDRESSES DEMOGRAPHIC IMPACTS, IMPACTS ON HOUSING, WATER, SEWER, EDUCATION, HEALTH AND OTHER PUBLIC FACILITIES AND SERVICES. MITIGATION MEASURES ARE ALSO PROVIDED.

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00000955
PROJECT TITLE
INDIAN LIGNITE MANPOWER PROJECT
PROJECT NUMBER
EDA GRANT # 05-06-01563
INVESTIGATORS
DOUGLAS J. MYERS / ARNIE R. GUIMONT / DONALD SCHWARTZ
RESEARCH INSTITUTION
UNITED TRIBES EDUCATIONAL TECHNICAL CENTER
3315 S. AIRPORT ROAD / BISMARCK, ND 58501
PRIMARY SPONSOR
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
PRIMARY FUNDING AMOUNT
177,833
TIME FRAME
JULY 1975 TO SEPT. 1978
LOCATION
MT ND
ABSTRACT

THE GENERAL OBJECTIVE OF THIS PROJECT IS TO REDUCE UNEMPLOYMENT AMONG INDIAN PEOPLE BY PROVIDING A MEANS FOR NORTH DAKOTA AND MONTANA INDIAN PEOPLE TO SEEK AND SUCCESSFULLY COMPETE FOR JOBS IN THE NEWLY EXPANDING LIGNITE INDUSTRY IN THESE STATES. MORE SPECIFICALLY, THE INDIAN LIGNITE MANPOWER PROJECT WILL 1. COLLECT INFORMATION REGARDING THE SIZE AND COMPOSITION OF THE AVAILABLE INDIAN LABOR FORCE FROM RESERVATIONS IN NORTH DAKOTA AND WESTERN MONTANA AND FROM URBAN AREAS NEAR THESE RESERVATIONS; 2. DEVELOP WORKING RELATIONSHIPS WITH COMPANIES PRESENTLY OR POTENTIALLY INVOLVED IN LIGNITE DEVELOPMENT IN ORDER TO DETERMINE THEIR MANPOWER NEEDS, TO PROVIDE TRAINING FOR COMPANY PERSONNEL IN HIRING AND RETAINING INDIAN PEOPLE, AND TO DEVELOP ASSURANCES FROM THE COMPANIES THAT INDIAN PEOPLE WILLING TO TRAIN, AND IF NECESSARY RELOCATE, WOULD HAVE AN OPPORTUNITY TO OBTAIN EMPLOYMENT; 3. DEVELOP WORKING RELATIONSHIPS WITH RELEVANT LABOR UNIONS TO INSURE THAT INDIAN PEOPLE INTERESTED IN LIGNITE EMPLOYMENT WOULD NOT ENCOUNTER MEMBERSHIP BARRIERS AND THAT THEY WOULD HAVE SOME PROMISE OF A PORTION OF THE APPRENTICESHIP POSITIONS; 4. WORK WITH EXISTING VOCATIONAL EDUCATION INSTITUTIONS AND OTHER SPONSORS TO DEVELOP SPECIFIC TRAINING PROGRAMS IN HIGH NEED AREAS AND TO FACILITATE THE ENTRY OF INTERESTED INDIAN PEOPLE INTO THOSE PROGRAMS; AND 5. INITIATE AN INTENSIVE AND EFFECTIVE RECRUITING ACTIVITY, PLUS MECHANISMS FOR ITS CONTINUATION AFTER TERMINATION OF THE PROJECT, WHICH WOULD MOVE INTERESTED INDIAN PEOPLE INTO EMPLOYMENT IN THE CONSTRUCTION AND OPERATION PHASES OF COAL MINING AND COAL CONVERSION FACILITITES, OR, IF NEEDED, INTO TRAINING AND THEN INTO THOSE POSITIONS. (MEO)

REPORTS AND PUBLICATIONS
DONALD F. SCHWARTZ. RESERVATION MANPOWER SURVEY: INDIAN PEOPLE'S INTEREST IN LIGNITE INDUSTRY EMPLOYMENT. NORTH DAKOTA STATE UNIVERSITY. JANUARY 1977.

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00000956
PROJECT TITLE
A STUDY OF RETENTION PROGRAM NEEDS OF AMERICAN INDIAN EMPLOYEES IN THE LIGNITE INDUSTRY
INVESTIGATORS
JAN PARKINSON
RESEARCH INSTITUTION
INSTITUTE FOR MANPOWER PROGRAM ANALYSIS, CONSULTATION
& TRAINING, INC. (IMPACT) / 700 WAYZATA BLVD /
MINNEAPOLIS, MN 55403
PRIMARY SPONSOR
UNITED TRIBES EDUCATIONAL TECHNICAL CENTER
3315 S. AIRPORT ROAD / BISMARCK, ND 58501
PRIMARY FUNDING AMOUNT
6346.09
TIME FRAME
OCT. 1977 TO MAR. 1978
LOCATION
ND
ABSTRACT

RECENTLY, A RESERVATION MANPOWER SURVEY WAS CONDUCTED FOR THE INDIAN LIGNITE MANPOWER PROGRAM TO DETERMINE THE SIZE AND COMPOSITION OF THE RESERVATION LABOR FORCE INTERESTED IN LIGNITE INDUSTRY EMPLOYMENT. THE INDIANS INTERVIEWED RANKED 'STEADY WORK WITH NO LAYOFFS' AND 'HIGH PAY' AS THE MOST IMPORTANT CRITERIA FOR JOB SATISFACTION, AND SUCH SERVICES AS 'HELP WITH PERSONAL PROBLEMS' AS LEAST IMPORTANT. WHILE ATTITUDES AND BEHAVIOR MAY NOT ALWAYS BE CONSISTENT, IT IS POSSIBLE THAT PART OF THE EXPLANATION FOR LOW JOB RETENTION AMONG INDIANS

MAY BE ATTRIBUTED TO THE TYPES OF JOBS HELD BY INDIANS AND THEIR ACCOMPANYING WAGE RATES. FOR THIS REASON WE WISH TO STRATIFY INDIAN AND NON-INDIAN EMPLOYEES ON THE BASIS OF HIGH, MEDIUM OR LOW WAGES EARNED. BY 'CONTROLLING' FOR WAGES, THE COMPARISONS OF RETENTION RATES FOR INDIAN/NON-INDIAN EMPLOYEES WILL MORE REALISTICALLY REFLECT THE SEVERITY OF THE PROBLEM, THE POPULATION HAVING THE GREATEST RETENTION PROGRAM NEEDS, AND THE DIFFERENT KINDS OF RETENTION PROGRAMS NEEDED. THERE SHALL BE THREE PHASES OF WORK FOR THIS STUDY: A LITERATURE REVIEW, A SURVEY OF LIGNITE FIRMS AND A SURVEY OF RETAINED AND NON-RETAINED INDIAN EMPLOYEES.

I. LITERATURE REVIEW. IMPACT SHALL UNDERTAKE AN EXTENSIVE LITERATURE REVIEW OF JOB RETENTION PROGRAMS IN GENERAL AND JOB RETENTION PROGRAMS FOR INDIAN PEOPLE IN PARTICULAR.

II. SURVEY OF LIGNITE INDUSTRY FIRMS. THE INFORMATION REQUIRED WILL BE: 1. THE NAMES, FORMER ADDRESSES, AND FORWARDING ADDRESSES OF UNRETAINED INDIAN EMPLOYEES; 2. THE NUMBER OF INDIAN PEOPLE CURRENTLY EMPLOYED IN HIGH, MEDIUM AND LOW WAGE POSITIONS; 3. THE NUMBER OF NON-INDIAN PEOPLE CURRENTLY EMPLOYED IN HIGH, MEDIUM AND LOW WAGE POSITIONS; 4. THE NUMBER OF INDIAN PEOPLE NOT RETAINED IN HIGH, MEDIUM AND LOW WAGE POSITIONS DURING THE PAST TWO YEARS; 5. THE NUMBER OF NON-INDIAN PEOPLE NOT RETAINED IN HIGH, MEDIUM AND LOW WAGE POSITIONS DURING THE PAST TWO YEARS; 6. DEMOGRAPHIC CHARACTERISTICS OF INDIAN LIGNITE EMPLOYEES, E.G., TRIBE, SEX, AGE, EDUCATION, LENGTH OF TIME OFF THE RESERVATION, ETC.

III. SURVEY OF RETAINED AND UNRETAINED INDIAN EMPLOYEES. IMPACT WILL CONDUCT A SURVEY OF RETAINED AND UNRETAINED INDIAN EMPLOYEES. THE SURVEY QUESTIONS WILL BE DEVELOPED IN CLOSE COOPERATION WITH THE UTETC PROJECT OFFICER, AND THE SURVEY WILL ALSO INCLUDE QUESTIONS DEEMED IMPORTANT THROUGH THE LITERATURE REVIEW.

00000957
PROJECT TITLE
FELLOWSHIP PROGRAMS FOR MINERAL FUEL DEVELOPMENT
PROJECT NUMBER
8950
INVESTIGATORS
DONALD L. STINSON
RESEARCH INSTITUTION
UNIV. OF WYOMING, DEPT. OF MINERAL ENGINEERING
BOX 3295, UNIVERSITY STATION / LARAMIE, WY 82070
PRIMARY SPONSOR
U.S. DEPT. HEALTH, EDUCATION AND WELFARE
PRIMARY FUNDING AMOUNT
67,600
TIME FRAME
SEPT. 1977 TO OCT. 1978
LOCATION
WY
ABSTRACT

TO FUND 8, 12-MONTH FELLOWSHIPS IN MINERAL ENGINEERING TO BE DIRECTED AT RESEARCH AND TRAINING IN THE AREA OF MINERAL FUEL DEVELOPMENT.

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00000958
PROJECT TITLE
EFFECTS OF SOLVENT CHARACTERISTICS ON WYODAK COAL LIQUEFACTION
PROJECT NUMBER
E(49-18)-2367
INVESTIGATORS
DR. HOWARD F. SILVER (MINERAL ENGINEERING) /
DR. ROBERT J. HURTUBISE (CHEMISTRY)
RESEARCH INSTITUTION
UNIV. OF WYOMING, DEPT. OF ENGINEERING / LARAMIE, WY 82071
UNIV. OF WYOMING, DEPT. OF CHEMISTRY / LARAMIE, WY 82071
PRIMARY SPONSOR
U.S. ERDA / FOSSIL ENERGY UNIVERSITY RELATIONS
WASHINGTON, D.C.
PRIMARY FUNDING AMOUNT
234,900
TIME FRAME
MAY 1976 TO JULY 1978
LOCATION
WY - ALBANY CO.
ABSTRACT

THE OBJECTIVE OF THIS PROPOSED RESEARCH IS TO INVESTIGATE THE EFFECTS OF SOLVENT CHARACTERISTICS ON THE EXTENT OF WYODAK COAL LIQUEFACTION, ASPHALTENE FORMATION, AND NITROGEN REMOVAL DURING THE NON-CATALYTIC HYDROGENATION OF WYODAK COAL. THE RESEARCH IS DIVIDED INTO THREE MAJOR AREAS AS FOLLOWS: 1. REACTOR EXPERIMENTS. PROCESSING WYODAK COAL IN A SERIES OF SOLVENTS TO INCLUDE SOLVENT REFINED COAL (SRC) PROCESS RECYCLE OILS, COAL TAR DISTILLATES AND OTHER SOLVENTS, BOTH AS RECEIVED AND MODIFIED, FOR EXAMPLE BY PREHYDROGENATION OR BLENDING, UNDER REACTION CONDITIONS REPRESENTATIVE OF SRC PROCESSES. 2. CHEMICAL ANALYSES. A. STANDARD CHEMICAL ANALYSES; B. SOLVENT CHARACTERIZATION; C. NITROGEN CLASSES. 3. ANALYSIS OF DATA. EVALUATION OF THE PRECISION OF THE REACTION DATA AND CORRELATION OF THE VARIABLES STUDIED.
REPORTS AND PUBLICATIONS

CONTACT DR. HOWARD F. SILVER, DEPT. OF MINERAL ENGINEERING OR DR. ROBERT J. HURTUBISE, DEPT. OF CHEMISTRY, UNIVERSITY OF WYOMING, LARAMIE, WY 82071.

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00000959
PROJECT TITLE
SEPARATION AND DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS AND NITROGEN HETROCYCLES PERTAINING TO COAL GASIFICATION, TAR SANDS AND SHALE OIL
PROJECT NUMBER
8219
INVESTIGATORS
ROBERT J. HURTUBISE
RESEARCH INSTITUTION
UNIV. OF WYOMING, DEPT. OF CHEMISTRY / LARAMIE, WY 82071
PRIMARY SPONSOR
U.S. ERDA, LARAMIE ENERGY RESEARCH CENTER / LARAMIE, WY
PRIMARY FUNDING AMOUNT
30,000 PER YEAR
TIME FRAME
AUG. 1975 TO OCT. 1978
LOCATION
WY - ALBANY CO.
ABSTRACT

THE ANALYTICAL SEPARATION TECHNIQUES TO BE USED IN THIS PROJECT ARE THIN-LAYER AND HIGH PERFORMANCE LIQUID CHROMATOGRAPHY, DRY-COLUMN CHROMATOGRAPHY AND PROGRAMMED MULTIPLE DEVELOPMENT. THE SPECTROSCOPIC TECHNIQUES TO BE EMPLOYED FOR IDENTIFICATION AND DETERMINATION PURPOSES ARE MAINLY SOLUTION AND SOLID SURFACE FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY. INFRARED, MASS, AND PROTON NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY WILL BE USED WHEN NEEDED FOR IDENTIFICATION OF COMPOUNDS. GENERALLY, THE ABOVE TECHNIQUES WILL BE APPLIED TO

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) AND NITROGEN HETEROCYCLES (NH) IN SHALE OIL, TAR FROM TAR SANDS, RETORT WATER, WATER FROM UNDERGROUND COAL GASIFICATION, TAR PROCESS WATER OF COMBUSTION AND OTHER RELATED SAMPLES.

REPORTS AND PUBLICATIONS

R. J. HURTUBISE ET AL. FLUORESCENCE CHARACTERIZATION AND IDENTIFICATION OF POLYNUCLEAR AROMATIC HYDROCARBONS IN SHALE OIL. ANAL. CHEM. ACTA, 89, 377. 1977. CONTACT R. J. HURTUBISE, CHEMISTRY DEPT., UNIVERSITY OF WYOMING, LARAMIE, WY 82071.

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00000960

PROJECT TITLE

ASSESSMENT FOR COAL SLURRY PIPELINE TECHNOLOGY

INVESTIGATORS

BRAD HOLLOMON

RESEARCH INSTITUTION

U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510

PRIMARY SPONSOR

U.S. CONGRESS

TIME FRAME

JULY 1976 TO SEPT. 1977

LOCATION

NATIONWIDE

ABSTRACT

THE U.S. OFFICE OF TECHNOLOGY ASSESSMENT IS PERFORMING A TECHNOLOGY ASSESSMENT OF COAL PIPELINES AT THE REQUEST OF SEVERAL COMMITTEES OF THE HOUSE AND SENATE. FEDERAL LEGISLATION TO PROVIDE OR FOSTER THE TRANSPORTATION OF COAL SLURRY BY PIPELINE HAS BEEN CONSIDERED BY THE CONGRESS FOR OVER 10 YEARS AND HAS BEEN A SUBJECT UNDER ACTIVE DELIBERATION SINCE 1974. AMONG THE LEGISLATIVE CONCERNS EXPRESSED IN REQUESTS FOR AN ASSESSMENT OF THE COAL SLURRY PIPELINE TECHNOLOGY AND ITS RELATIVE ADVANTAGES AND DISADVANTAGES ARE QUESTIONS REGARDING POTENTIAL IMPACTS UPON THE ENVIRONMENT, POTENTIAL IMPACTS UPON OTHER POSSIBLE MODES OF TRANSPORTATION, AND POTENTIAL IMPACTS ON THE CONSUMPTION OF WATER IN AREAS WHERE COAL MINING ACTIVITY IS EXPECTED TO INCREASE IN THE COMING YEARS. THE ASSESSMENT IS EXPECTED TO INCLUDE SUCH MATTERS AS: 1. A NUMBER OF TECHNOLOGICAL, ENERGY AND LEGAL ISSUES; 2. ENVIRONMENTAL EFFECTS WITH EMPHASIS ON WATER, LAND USE AND COMMUNITY PLANNING; AND 3. EVALUATION OF THE COSTS, RETURNS AND IMPACTS OF SLURRY PIPELINES ON THE RAILROADS. THE RESULTS OF THE ASSESSMENT WILL BE PRESENTED IN A FORM WHICH CLEARLY DEFINES AND ANALYZES ALTERNATIVE COURSES OF ACTION. (MEO)

REPORTS AND PUBLICATIONS

A FINAL REPORT WILL BE AVAILABLE UPON COMPLETION OF THE ASSESSMENT.

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00000961

PROJECT TITLE

ASSESSMENT OF COAL SLURRY PIPELINE TECHNOLOGY - LEGAL AND REGULATORY STUDY

INVESTIGATORS

GARY ALLISON / KENT FRIZZELL / ERIC JENSEN / DAVID DALE

RESEARCH INSTITUTION

UNIV. OF TULSA, NATIONAL ENERGY LAW AND POLICY INST.
COLLEGE OF LAW / 3120 E. 4TH PLACE / TULSA, OK 74104

PRIMARY SPONSOR

U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510

PRIMARY FUNDING AMOUNT

31,000

TIME FRAME

JULY 1977 TO NOV. 1977

LOCATION

NATIONWIDE

ABSTRACT

THE SPECIFIC OBJECTIVE IS TO ADDRESS THE ISSUES CONCERNING WATER RIGHTS, EMINENT DOMAIN, COMMON CARRIER STATUS, APPLICABLE PROVISIONS OF THE INTERSTATE COMMERCE ACT, AND ENVIRONMENTAL PROTECTION. THE EXISTING LEGAL SYSTEMS, INCLUDING RELEVANT STATUTES, REGULATORY POLICIES, AND JUDICIAL PRECEDENTS, ARE TO BE DESCRIBED AND DISCUSSED WITH PARTICULAR ATTENTION TO CONTRASTING THE FRAMEWORK FOR COAL SLURRY PIPELINES WITH THE REGULATORY ENVIRONMENT FOR RAILROADS AND FOR OTHER SIMILAR OR COMPETING TRANSPORTATION MODES. SPECIFIC TASKS INCLUDE: 1. WATER RIGHTS. PRESENT SLURRY PIPELINE TECHNOLOGY AND ECONOMICS GENERALLY REQUIRE THAT THE COAL TO BE TRANSPORTED BE MIXED WITH AN APPROXIMATELY EQUAL AMOUNT BY WEIGHT OF WATER. SINCE PIPELINES HAVE BEEN PROPOSED AS A MEANS OF TRANSPORTING COAL FROM WESTERN STATES WHERE WATER IS RELATIVELY SCARCE, THE USE OF THIS RESOURCE HAS BEEN A CENTRAL ISSUE. 2. EMINENT DOMAIN. PROPONENTS OF COAL SLURRY PIPELINE DEVELOPMENT MAINTAIN THAT THE POWER OF EMINENT DOMAIN IS NECESSARY IN ORDER TO CROSS RAILROAD RIGHTS OF WAY. THE PRECEDENTS SHALL THEREFORE BE REVIEWED FOR GRANTING THIS POWER FOR SIMILAR PURPOSES AT BOTH THE FEDERAL AND STATE LEVELS. PARTICULAR ATTENTION SHALL BE PAID TO THE CONDITIONS GENERALLY CONSIDERED TO BE NECESSARY OR SUFFICIENT TO JUSTIFY THE CONDEMNATION OF PRIVATE PROPERTY IN THIS WAY, AND THE EXTENT TO WHICH THOSE CONDITIONS APPLY

TO SLURRY PIPELINES. 3. COMMON CARRIER STATUS. THE CONTRACTOR SHALL EXPLAIN THE CONDITIONS UNDER WHICH A COAL SLURRY PIPELINE WOULD BE REQUIRED TO SERVE AS A COMMON CARRIER, AND TO DESCRIBE WHAT COMMON CARRIER STATUS WOULD MEAN IN PRACTICAL TERMS FOR A TRANSPORTATION MODE OF THIS NATURE. THE ASSOCIATED PRIVILEGES AND OBLIGATIONS SHALL BE COMPARED WITH THOSE OF COMMON CARRIERS BY RAILROAD, WATERWAY, AND OTHER MODES INCLUDING PIPELINES CARRYING OTHER COMMODITIES. 4. INTERSTATE COMMERCE ACT PROVISIONS. THE CONTRACTOR SHALL REVIEW THE INTERSTATE COMMERCE ACT FOR PROVISIONS APPLICABLE TO COAL SLURRY PIPELINES; ANY REQUIREMENTS WHICH AFFECT THE ABILITY OF RAILROADS OR OTHER MODES TO COMPETE WITH THEM SHALL BE IDENTIFIED. 5. ENVIRONMENTAL PROTECTION. ENVIRONMENTAL PROTECTION STATUTES AND REGULATORY POLICIES MAY INFLUENCE THE EXTENT TO WHICH PIPELINE SYSTEMS CAN BE DEVELOPED AND MAY ALTER THE PROSPECTIVE COMPETITIVE BALANCE WITH ESTABLISHED MODES.

STUDY AFFILIATION

THIS IS A SUBPROJECT OF 'ASSESSMENT FOR COAL SLURRY PIPELINE TECHNOLOGY,' U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, ERIS PROJECTS REPORT, VOL. II, NO. 3, NOVEMBER, 1977.

REPORTS AND PUBLICATIONS

RESULTS OF THIS WORK WILL FORM PART OF A REPORT TO BE ISSUED BY THE OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, WASHINGTON, D.C. 20510. A REPORT OF THIS PROJECT WILL NOT BE AVAILABLE SEPARATELY.

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00000962

PROJECT TITLE

ASSESSMENT OF COAL SLURRY PIPELINE TECHNOLOGY - ECONOMIC AND COMPETITIVE IMPACTS STUDY

INVESTIGATORS

PAUL S. SOUDER / DR. JAMES CUMMINGS-SAXTON / DR. MARY ELLEN WEBER

RESEARCH INSTITUTION

GENERAL RESEARCH CORP. / INTERNATIONAL RESEARCH & TECHNOLOGY CORP. / 7655 OLD SPRINGHOUSE RD / MCLEAN, VA

PRIMARY SPONSOR

U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510

PRIMARY FUNDING AMOUNT

162,000

TIME FRAME

MAY 1977 TO NOV. 1977

LOCATION

NATIONWIDE

ABSTRACT

THIS STUDY ADDRESSES THE ECONOMIC AND COMPETITIVE IMPACTS OF COAL SLURRY PIPELINES, WHICH HAVE BEEN A CONTINUING SOURCE OF CONCERN DURING CONGRESSIONAL CONSIDERATIONS OF LEGISLATION PERTAINING TO THIS TECHNOLOGY. THE SPECIFIC OBJECTIVE IS TO ADDRESS THE ISSUES OF COSTS, RATES, AND COMPETITIVE EFFECTS ON OTHER MODES OF TRANSPORTATION. THE ECONOMIC IMPACTS THAT WOULD ARISE FROM THE WIDESPREAD INTRODUCTION OF SLURRY PIPELINES TO MEET PROJECTED COAL TRANSPORTATION NEEDS SHALL BE ASSESSED, AS WELL AS THE ECONOMIC IMPACTS OF MEETING THESE SAME NEEDS BY EXPANDING RAILROADS AND OTHER EXISTING TRANSPORTATION MODES. IN ORDER TO ANALYZE THESE ISSUES OBJECTIVELY, THE CONTRACTOR SHALL DEVELOP DATA ON PIPELINE AND RAIL CAPITAL AND OPERATING COSTS AND THEN RELATE THEM TO PIPELINE AND RAIL RATES. PARTICULAR CARE SHALL BE TAKEN TO SEPARATE COST AND RATE DATA AND TO CONSIDER THE ENTIRE PROCESS FROM THE MINEMOUTH TO THE POINT OF CONSUMPTION. THE CONTRACTOR SHALL INCLUDE IN HIS ANALYSIS THE COSTS ASSOCIATED WITH PROVIDNG COMPETITIVE LEVELS OF SAFETY, RELIABILITY, FLEXIBILITY, AND PROMPTNESS OF SERVICE; AND ALTERNATELY, THE COST TO CONSUMERS OF INSURING AGAINST THE RISKS, OR OF ABSORBING THE COSTS DUE TO THE RELATIVE SHORTCOMINGS OF A GIVEN MODE.
THE STUDY EXPLORES THE VARIETY OF IMPORTANT IMPACTS WHICH MIGHT FOLLOW THE EXPANSION OF ALTERNATIVE MODES TO MEET PROJECTED LEVELS OF COAL TRANSPORTATION DEMAND. 1. IMPACTS ON PRODUCERS, SHIPPERS AND CONSUMERS (COST AND SERVICE QUALITY). A. COAL; B. ELECTRICITY; C. AGRICULTURAL PRODUCTS; D. OTHER COMMODITIES. 2. CAPITAL REQUIREMENTS (TIME SPECIFIC). A. PIPELINES; B. RAIL; C. OTHER MODES. 3. IMPACTS ON REGIONAL AND NATIONAL ECONOMIC OUTLOOK (LONG AND SHORT TERM). A. EMPLOYMENT (BY SKILL CATEGORY); B. REGIONAL AND NATIONAL PRODUCTS; C. INFLATION. 4. IMPACTS ON OTHER TRANSPORTATION MODES. A. RAIL; B. OTHER. 5. IMPACTS ON FEDERAL, STATE AND LOCAL GOVERNMENT. A. TAXES; B. REQUIRED SERVICES; C. OTHER IMPACTS.

STUDY AFFILIATION

THIS IS A SUBPROJECT OF 'ASSESSMENT FOR COAL SLURRY PIPELINE TECHNOLOGY,' U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, ERIS PROJECTS REPORT, VOL. II, NO. 3, NOVEMBER 1977.

REPORTS AND PUBLICATIONS

RESULTS OF THIS WORK WILL FORM PART OF A REPORT TO BE ISSUED BY THE OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, WASHINGTON, D.C. 20510. A REPORT OF THIS PROJECT WILL NOT BE AVAILABLE SEPARATELY.

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00000963

PROJECT TITLE

ENVIRONMENTAL IMPACTS OF COAL TRANSPORTATION BY SLURRY

PIPELINE AND UNIT TRAIN
PROJECT NUMBER
1-064-03-029-00
INVESTIGATORS
MICHAEL B. ROGOZEN / L. MARGLER / M. MARTZ / D. HAUSKNECHT
H. SILVERMAN
RESEARCH INSTITUTION
SCIENCE APPLICATIONS, INC. / 1801 AVE. OF THE STARS,
SUITE 1205 / LOS ANGELES, CA 90067
PRIMARY SPONSOR
U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510
PRIMARY FUNDING AMOUNT
86,001
TIME FRAME
JUNE 1977 TO NOV. 1977
LOCATION
MT ND SO WY NE TX MN WI TN FL UT CA
CONSIDERS PIPELINES FROM WYOMING TO TEXAS AND MONTANA TO MINNESOTA. WATER SUPPLY FROM POWDER RIVER BASIN GROUNDWATER, BIGHORN BASIN.
ABSTRACT

SCIENCE APPLICATIONS, INC. (SAI) IS CURRENTLY PERFORMING FOR THE U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, AN INDEPENDENT, OBJECTIVE ANALYSIS OF THE ENVIRONMENTAL IMPACTS OF COAL SLURRY PIPELINES AND UNIT TRAINS. TO MAKE THE ANALYSIS AS REALISTIC AS POSSIBLE, HYPOTHETICAL SCENARIOS ARE BEING EXAMINED. THESE INCLUDE SHIPMENT OF VARIOUS AMOUNTS OF COAL BETWEEN 1985 AND 2040, BY NEW COAL SLURRY PIPELINES OR BY EXPANDED SERVICE OVER EXISTING RAIL LINES, BETWEEN THE FOLLOWING ORIGIN-DESTINATION PAIRS: GILLETTE, WYOMING TO FT. WORTH/DALLAS AND HOUSTON, TEXAS; COLSTRIP, MONTANA TO BECKER, MINNESOTA AND PORTAGE, WISCONSIN; TRACY CITY, TENNESSEE TO TAMPA AND FT. LAUDERDALE, FLORIDA; AND PRICE, UTAH TO BARSTOW, CALIFORNIA. A MAJOR PART OF THE WYOMING-TEXAS CASE STUDY IS A CRITICAL REVIEW OF ALL MAJOR ISSUES INVOLVING THE MADISON FORMATION. THE CASE STUDIES, ALONG WITH MORE GENERAL RESEARCH, ARE INTENDED TO SHED LIGHT ON THE FOLLOWING ENVIRONMENTAL ISSUES ASSOCIATED WITH COAL SLURRY PIPELINES: PIPELINE SYSTEM WATER REQUIREMENTS, IMPACTS UPON ALTERNATIVE WATER USES, CHEMICAL INTERACTIONS BETWEEN COAL AND WATER IN THE SLURRY PIPELINE, PIPELINE RIGHT-OF-WAY REVEGETATION, RE-USE ALTERNATIVES AND IMPACTS, INDIRECT AIR POLLUTION EMISSIONS, ENERGY AND MATERIAL REQUIREMENTS, SPILLS, AND ALTERNATIVE WATER SOURCES. ISSUES ASSOCIATED WITH INCREASED UNIT TRAIN OPERATIONS ARE: NOISE, RAIL-HIGHWAY GRADE CROSSING ACCIDENTS, FIRES, DIESEL EMISSIONS, ENERGY AND MATERIAL REQUIREMENTS AND SOCIAL IMPACTS. A MAIN OBJECTIVE OF THE STUDY IS TO DEVELOP GENERALIZABLE METHODOLOGIES FOR QUANTIFYING IMPACTS IN MOST OF THESE AREAS.

STUDY AFFILIATION
THIS IS A SUBPROJECT OF, 'TECHNOLOGY ASSESSMENT OF COAL SLURRY PIPELINES,' U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, ERIS PROJECTS REPORT, VOL. II, NO. 3,NOVEMBER 1977.
REPORTS AND PUBLICATIONS
ENVIRONMENTAL IMPACTS OF COAL SLURRY PIPELINES AND UNIT TRAINS. FINAL REPORT DUE NOV. 15, 1977.
U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT.
WASHINGTON, D.C. 20510. JANUARY, 1978.

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00000964
PROJECT TITLE
DISTILLATION PROJECT
PROJECT NUMBER
G&C 131
INVESTIGATORS
LLOYD BERG
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF CHEMICAL ENG. / BOZEMAN,
MT 59715
PRIMARY SPONSOR
INTERNATIONAL SYNTHETIC RUBBER / SOUTHAMPTON, ENGLAND
PRIMARY FUNDING AMOUNT
10,000
TIME FRAME
JULY 1973 TO JUNE 1977
LOCATION
MT
ABSTRACT

AN INVESTIGATION OF THE SEPARATION OF ETHYL BENZENE FROM P-XYLENE AND M-XYLENE BY MEANS OF EXTRACTIVE DISTILLATION. (MEO)

REPORTS AND PUBLICATIONS
P. J. KOBER. MASTERS THESIS. MONTANA STATE UNIVERSITY, BOZEMAN, MT. DECEMBER 1974.

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00000965
PROJECT TITLE
FUEL CELL DEVELOPMENT STUDY
INVESTIGATORS
J. J. RASMUSSEN
RESEARCH INSTITUTION
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BOX 3809 / BUTTE, MT 59701
PRIMARY SPONSOR
U.S. ERDA

PRIMARY FUNDING AMOUNT
246,934
TIME FRAME
JUNE 1977 TO SEPT. 1978
LOCATION
MT - SILVER BOW CO.; BUTTE
ABSTRACT

THE CURRENT ERDA GOAL FOR AN ELECTRICAL UTILITY FUEL CELL OPERATING DIRECTLY OR INDIRECTLY ON COAL APPEAR TO BE SERVED BEST BY HIGH TEMPERATURE FUEL CELL TECHNOLOGY---EITHER THE MOLTEN CARBONATE ELECTROLYTE SYSTEM, OR THE SOLID ELECTROLYTE SYSTEM. THESE SYSTEMS HAVE THE BEST POTENTIAL FOR THE ELECTRO-OXIDATION OF COAL AND COAL-DERIVED SECONDARY FUELS BECAUSE OF THEIR ABILITY TO PROVIDE HIGH TEMPERATURE ACTIVATION OF FUELS WITH ATTENDANT SIMPLIFIED ELECTROCATALYTIC PROBLEMS. MERDI HAS BEGUN WORK ON A $247,000, 18-MONTH PROGRAM DIRECTED AT FINDING MATERIALS FOR FUEL CELL ALTERNATIVES TO OVERCOME THE MATERIAL PROBLEMS ASSOCIATED WITH HIGH TEMPERATURE FUEL CELLS. THE WORK CONSISTS OF TWO SEPARATE TASKS: 1. DEVELOPMENT OF MATERIALS WITH MICROSTRUCTURAL PROPERTIES SUITABLE FOR THE CONTAINMENT OF MOLTEN CARBONATE ELECTROLYTES FOR THE 40,000-HOUR OR LONGER LIFETIME OF A FUEL CELL OPERATING IN THE TEMPERATURE RANGE OF 450-900 DEGREES C.
2. EVALUATION OF THE PROPERTIES OF CONSTRUCTION MATERIALS AND SOLID ELECTROLYTE MATERIALS DEVELOPED FOR ELECTRODES IN THE MHD PROGRAM AND DETERMINATION OF METHODS TO MODIFY THESE MATERIALS. (MEO)

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00000966
PROJECT TITLE
ETF ENVIRONMENTAL ENGINEERING AND EVALUATION TASK M
INVESTIGATORS
SUSAN BROWN / D. L. BRELSFORD
RESEARCH INSTITUTION
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BOX 3809 / BUTTE, MT 59701
PRIMARY SPONSOR
U.S. ERDA, MHD DIV. OF FOSSIL ENERGY
PRIMARY FUNDING AMOUNT
FUNDING FOR THIS TASK INCLUDED IN MERDI MHD PROJECT.
TIME FRAME
JUNE 1976 TO SEPT. 1978
LOCATION
MT - SILVER BOW CO.; SOUTH BUTTE DISTRICT, SECTION 18;
T. 1N; R. 7W.
ABSTRACT

THE ENGINEERING TEST FACILITY (ETF) SITING STUDY HAS COMPLETED THE FIRST TWO PHASES. ANALYSIS OF CANDIDATE SITE AREAS WILL PROCEED DURING THE FORTHCOMING YEAR. THE OBJECTIVE OF THE ETF ENVIRONMENTAL ENGINEERING AND EVALUATION (TASK M) IS TO IDENTIFY A POTENTIALLY SUITABLE SITE FOR A LARGE, WESTERN-BASED, COAL-FIRED MHD STEAM POWER PLANT. THE WORK IS AIMED AT DETERMINING A POTENTIAL LOCATION BASED UPON APPROPRIATE ENVIRONMENTAL, SOCIAL, AND ECONOMIC ASPECTS RELATED TO CONSTRUCTION AND OPERATION OF THE MHD STEAM POWER PLANT FACILITY. (TASK M CONTINUES THE WORK BEGUN UNDER TASK H-S.) (MEO)

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00000967
PROJECT TITLE
CDIF ENVIRONMENTAL & EVALUATION PROGRAM - TASK Q
INVESTIGATORS
EDWARD KUKAY / D. L. BRELSFORD
RESEARCH INSTITUTION
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BOX 3809 / BUTTE, MT 59701
PRIMARY SPONSOR
U.S. ERDA, MHD DIV. OF FOSSIL ENERGY
PRIMARY FUNDING AMOUNT
FUNDING FOR THIS TASK INCLUDED IN MERDI MHD PROJECT.
TIME FRAME
SEPT. 1976 TO CONTINUING
LOCATION
MT - SILVER BOW CO.; SOUTH BUTTE DISTRICT, SECTION 18;
T. 1N; R. 7W
ABSTRACT

THE MONITORING AND EVALUATION PROGRAM UNDER TASK Q WILL ENSURE THAT THE OPERATION OF THE MHD-CDIF WILL ADHERE TO EXISTING FEDERAL AND STATE ENVIRONMENTAL REGULATIONS. VERIFICATION OF THE MHD-CDIF ENVIRONMENTAL IMPACTS WILL BE ACCOMPLISHED BY STATISTICAL COMPARISONS BETWEEN BASELINE (PRE-OPERATIONAL) AND FUTURE (OPERATIONAL) ENVIRONMENTAL PARAMETERS. THE OBJECTIVE OF THIS PROGRAM IS TO ESTABLISH A MINIMAL ENVIRONMENTAL SURVEILLANCE NETWORK AND TO ACCURATELY MONITOR AND EVALUATE THE ENVIRONMENTAL IMPACTS OF THE MHD-CDIF FACILITY AT BUTTE, MONTANA. STUDIES WILL BE RELATED TO AIR QUALITY PARAMETERS; METEOROLOGICAL AND CLIMATOLOGICAL CONDITIONS; AND BOTANICAL CHARACTERISTICS OF THE SOUTH BUTTE DISTRICT. (MEO)

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00000968

PROJECT TITLE
LIMITS AND COST SENSITIVITY OF ALTERNATE PARTING HANDLING METHODS

INVESTIGATORS
THOMAS E. FINCH

RESEARCH INSTITUTION
MONTANA COLLEGE OF MINERAL SCIENCES & TECHNOLOGY
BUTTE, MT 59701

PRIMARY SPONSOR
U.S. BUREAU OF MINES

SECONDARY SPONSORS
MONTANA COLLEGE OF MINERAL SCIENCES & TECHNOLOGY

PRIMARY FUNDING AMOUNT
43,410

TIME FRAME
DEC. 1975 TO APR. 1977

LOCATION
WESTERN U.S.

ABSTRACT
OBJECTIVE: GENERATE A COMPUTER PROGRAM TO LOOK AT COST SENSITIVITY OF DIFFERENT METHODS OF PARTING HANDLING. PHYSICAL LIMITS OF APPLICABLE MACHINERY WILL ALSO BE CONSIDERED. (MEO)

STUDY AFFILIATION
THIS PROJECT IS RELATED TO 'ALTERNATE METHODS OF HANDLING THE PARTING BETWEEN TWO COAL SEAMS,' U.S. BUREAU OF MINES, SERIAL NUMBER 00000225, ERIS QUARTERLY REPORTS, VOLUME I, NO. 1, NOVEMBER 1975.

REPORTS AND PUBLICATIONS
FINAL REPORT TO U.S. BUREAU OF MINES, APRIL 1977.

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00000969

PROJECT TITLE
OPTIMAL DRAGLINE OPERATING TECHNIQUES

PROJECT NUMBER
H0272003

INVESTIGATORS
TOM BOYCE / JACK GILLETTE

RESEARCH INSTITUTION
FLUOR-UTAH, INC. / 177 BOVET RD / SAN MATEO, CA 94402

PRIMARY SPONSOR
U.S. BUREAU OF MINES, SPOKANE MINING RESEARCH CENTER
EAST 315 MONTGOMERY AVE. / SPOKANE, WA 99207

PRIMARY FUNDING AMOUNT
230,000

TIME FRAME
JUNE 1977 TO MAR. 1978

LOCATION
CENTRAL AND ROCKY MOUNTAIN COAL PROVINCES

ABSTRACT
DEVELOP OPTIMAL DRAGLINE OPERATING TECHNIQUES TO INCREASE COAL PRODUCTION BY A MINIMUM OF 2 TO 5 PERCENT IN SINGLE SEAM MINING. CURRENT OPERATING TECHNIQUES ALONG WITH SPECIFIC TIME ANALYSIS WILL BE GATHERED. IMPROVED TECHNOLOGY WILL BE DEVELOPED. DEVELOPED TECHNIQUES WILL BE COMPARED AGAINST CURRENT PRACTICES, BOTH THEORETICALLY AND OPERATIONALLY, THROUGH A FIELD DEMONSTRATION.

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00000970

PROJECT TITLE
RESEARCH STUDY OF DESIGN AND DEVELOPMENT OF AREA TERRACE PIT MINING SYSTEMS

PROJECT NUMBER
J0275017

INVESTIGATORS
JON SPRAGUE / POWEL DUFFRYN

RESEARCH INSTITUTION
DAMES & MOORE / 605 PARFET ST / DENVER, CO 80215

COORDINATOR
TECH. SERVICES / NATIONAL COAL BOARD OF GREAT BRITAIN (PD/NCB) / LONDON, ENGLAND

PRIMARY SPONSOR
U.S. BUREAU OF MINES, SPOKANE MINING RESEARCH CENTER
EAST 315 MONTGOMERY AVE. / SPOKANE, WA 99207

PRIMARY FUNDING AMOUNT
180,000

TIME FRAME
SEPT. 1977 TO MAY 1979

LOCATION
ROCKY MOUNTAIN, NORTHERN GREAT PLAINS, AND INTERIOR COAL PROVINCES

ABSTRACT
THE PRIMARY PROBLEM ASSOCIATED WITH A DRAGLINE SURFACE MINING SYSTEM IS THAT THE COMBINATION OF A MEANDERING HIGHWALL, DEEP OVERBURDEN, AND UNDULATING TERRAIN MAY NECESSITATE COSTLY AND UNPRODUCTIVE REHANDLING OF SPOIL MATERIAL. THE TERRACE-PIT CONCEPT PERMITS TOTAL, DIRECT PLACEMENT OF OVERBURDEN MATERIALS, THEREBY ELIMINATING THE SPOIL REHANDLING PROBLEMS ASSOCIATED WITH A DRAGLINE OPERATION. THE EQUIPMENT UTILIZED BY A TERRACE-PIT SYSTEM CONSISTS ESSENTIALLY OF MOBILE UNITS FOR OVERBURDEN REMOVAL, SPOIL HANDLING, AND COAL EXTRACTION AND HAULAGE. BECAUSE THIS TYPE OF EQUIPMENT IS READILY AVAILABLE, A NEW MINE CAN BE BROUGHT

INTO PRODUCTION IN A RELATIVELY SHORT PERIOD OF TIME AS COMPARED TO THE LONG LEAD TIMES REQUIRED FOR THE DELIVERY AND CONSTRUCTION OF A DRAGLINE. THE TERRACE- OR BENCHED-PIT SYSTEM IS AMENABLE TO FLAT, GENTLY ROLLING OR SLOPING TOPOGRAPHY, PITCHING SEAMS, AND IRREGULARLY-SHAPED PERMIT AREAS. IN ADDITION, SELECTIVE OVERBURDEN PLACEMENT IS EASILY INTEGRATED INTO THE SYSTEM. THE TERRACE AND SPOIL BENCHES CAN BE DESIGNED TO ALLEVIATE HIGHWALL AND SPOIL INSTABILITY PROBLEMS AND MINIMUM DOZER TIME IS REQUIRED FOR SPOIL LEVELING. FURTHER EXAMINATION OF THE TERRACE-PIT CONCEPT UNDER VARYING OPERATING CONDITONS AND EQUIPMENT COMBINATIONS IS WARRANTED TO ESTABLISH ITS ECONOMIC AND PHYSICAL LIMITATIONS AND PRACTICALITY.

* * *

00000971
PROJECT TITLE
METHODS AND COSTS OF THIN SEAM MINING
PROJECT NUMBER
G0274010
INVESTIGATORS
THOMAS E. FINCH
RESEARCH INSTITUTION
MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY
BUTTE, MT 59701
PRIMARY SPONSOR
U.S. BUREAU OF MINES, SPOKANE MINING RESEARCH CENTER
EAST 315 MONTGOMERY AVE. / SPOKANE, WA 99207
SECONDARY SPONSORS
MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY
PRIMARY FUNDING AMOUNT
46,868
SECONDARY FUNDING AMOUNTS
4,318
TIME FRAME
SEPT. 1977 TO SEPT. 1978
LOCATION
MT WY ND (POWDER RIVER BASIN AND FORT UNION BASIN)
ABSTRACT

A UNIQUE SITUATION EXISTS IN THE HIGH PLAINS AREA OF THE WEST; THIN COAL SEAMS THAT CONSIST OF LOW QUALITY COAL WOULD NOT BE SURFACE MINED IF IT WERE NOT FOR THICK UNDERLYING COAL SEAMS. THE PRINCIPAL PROBLEM FOUND IN THIN SEAM MINING IS THE DELAY IN EXPOSING THE UNDERLYING MAJOR PRODUCTION SEAMS. THE DELAY CAN BE MEASURED BY THE LOSS OF PRIME STRIPPING EQUIPMENT UTILIZATION; EQUIPMENT SCHEDULING FOR COAL REMOVAL, DEVELOPMENT OF METHODS FOR THIN SEAM ACQUISITION AND SPECIALIZED EQUIPMENT REQUIREMENTS. IN SOME CASES, THE STRIPPING DRAGLINE MUST REMOVE THE OVERBURDEN TO THE THIN SEAM, MOVE TO ANOTHER LOCATION, AND THEN RETURN UPON COAL REMOVAL TO STRIP TO THE PRINCIPAL SEAM. MOVING CREATES SCHEDULING PROBLEMS AND POOR UTILIZATION OF THE PRIME STRIPPER. EXTRA EQUIPMENT, MORE LABOR INTENSIVE, IS REQUIRED FOR THE THIN SEAM REMOVAL BECAUSE THIN SEAMS MUST BE RIPPED AND DOZED OR LOADED OUT WITH SCRAPERS AND FRONT-END LOADERS. IN SOME CASES, THE PARTING BETWEEN SEAMS MUST BE REHANDLED. THE EXISTENCE AND REMOVAL OF THIN SEAMS MAY REPRESENT ONLY ABOUT 4 TO 10 PERCENT OF THE TOTAL RESOURCE. IN THESE CASES, IF NOT FOR REGULATIONS REQUIRING REMOVAL OF THIN SEAMS, AND FOR THE LACK OF ECONOMIC METHODS TO REMOVE THE COAL SEAMS, THE MOST ECONOMIC ALTERNATIVE MAY BE TO STRIP THROUGH THE SEAM AND SPOIL THE COAL. THE OBJECTIVE OF THIS PROJECT IS TO DEVELOP ECONOMIC, PRACTICAL MINING TECHNIQUES FOR THE REMOVAL OF THESE OVERLYING THIN COAL SEAMS.

00000972
PROJECT TITLE
EXISTING TEST AREA IMAGERY
PROJECT NUMBER
003.I-76
INVESTIGATORS
DENNY PARKER
RESEARCH INSTITUTION
PHOTO SCIENCE, INC. / GAITHERSBURG, MD
PRIMARY SPONSOR
U.S. FISH & WILDLIFE SERV., WELUT
DENNY PARKER / RM. 206 FED. BLDG. / FT. COLLINS, CO 80521
TIME FRAME
MAY 1976 TO APR. 1977
LOCATION
MT WY WELUT TEST AREA
ABSTRACT

EXISTING REMORE-SENSING IMAGERY COVERING FIVE REGIONAL ENVIRONMENTAL TEST AREAS WILL BE LOCATED, IDENTIFIED, INDEXED, DUPLICATED, AND MAINTAINED FOR FWS USES. THE PROJECT WILL UTILIZE THE PRODUCTS OF THE EXISTING WORK AS A BASIS FOR IDENTIFYING AND CATALOGING THE IMAGERY THAT EXISTS FOR THE WESTERN UNITED STATES AND THUS IDENTIFY THE SUBORBITAL COVERAGE THAT IS LACKING IN THE TEST AREAS.

PRODUCTS: 1. TABULAR INDEX OF ALL IMAGERY (FROM 1:130,000 TO 1:3,000) INCLUDING A DESCRIPTION OF THE IMAGERY, ITS LOCATION, AVAILABILITY, CONTACT POINTS, ETC. 2. SELECTED GRAPHICAL PRESENTATIONS. 3. COMPILATION COPY OF GRAPHICALLY INDEXED PHOTOGRAPHY. 4. INDEX MAPS.

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00000973
PROJECT TITLE
AN INVENTORY OF KNOWN HISTORIC SITES IN 31 EASTERN NORTH DAKOTA COUNTIES
PROJECT NUMBER
9-02-1
INVESTIGATORS
DR. JEROME TWETON
RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, DEPT. OF HISTORY / GRAND FORKS, ND
PRIMARY SPONSOR
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
316 N. 5TH ST. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT
26,500
TIME FRAME
MAY 1977 TO FEB. 1978
LOCATION
ND - 31 COUNTIES - CENTRAL AND EASTERN ND
ABSTRACT

AN INVENTORY WILL BE PREPARED OF HISTORIC PLACES, STRUCTURES, AND DISTRICTS FOR 31 NORTH DAKOTA COUNTIES NOT INCLUDED IN CONTRACT 9-01-3 AND A SERIES OF MAPS WILL BE PREPARED THAT WILL ILLUSTRATE THE LOCATIONS OF THESE SITES. THE 31 COUNTIES ARE BARNES, BENSON, BOTTINEAU, CASS, CAVALIER, DICKEY, EDDY, FOSTER, GRAND FORKS, GRIGGS, KIDDER, LAMOURE, LOGAN, MCINTOSH, NELSON, PEMBINA, PIERCE, RAMSEY, RENVILLE, RANSOM, RICHLAND, ROLETTE, SARGENT, SHERIDAN, STEELE, STUTSMAN, TOWNER, TRAILL, WALSH, WARD, WELLS. HISTORIC SITES WILL BE IDENTIFIED AND LOCATED BY MEANS OF EXTENSIVE EXAMINATION OF PUBLISHED AND UNPUBLISHED LITERATURE IN THE LIBRARIES OF THE UNIVERSITY OF NORTH DAKOTA, NORTH DAKOTA STATE UNIVERSITY, AND THE NORTH DAKOTA STATE HISTORICAL SOCIETY, AND IN REGIONAL AND LOCAL LIBRARIES THROUGHOUT THE STATE. ALL SITES INVENTORIED WILL BE TABULATED BY COUNTY. THE TABULATION WILL INCLUDE THE FOLLOWING INFORMATION: 1. LOCATION OF SITES ACCORDING TO THE TOWNSHIP-RANGE SYSTEM; 2. HISTORICAL FUNCTION AND SIGNIFICANCE; 3. AN EVALUATION OF EACH SITE IN TERMS OF ITS SIGNIFICANCE IN NORTH DAKOTA HISTORY FOR FUTURE CONSIDERATION. A BIBLIOGRAPHY WILL DOCUMENT THE SOURCES OF INFORMATION CONCERNING THE LOCATION AND HISTORICAL SIGNIFICANCE OF EACH SITE IN THE EVENT OF FUTURE ENERGY DEVELOPMENT ON OR NEAR THE SITES.

STUDY AFFILIATION
THIS PROJECT IS RELATED TO 'AN INVENTORY OF KNOWN HISTORIC SITES IN WESTERN NORTH DAKOTA,' SERIAL NUMBER 00000674, ERIS PROJECTS REPORT, VOLUME II, NO. 1, JANUARY, 1977.

00000974

PROJECT TITLE

MONTANA NATURAL GAS SUPPLY STUDY

INVESTIGATORS

THOMAS W. FRIZZELL

RESEARCH INSTITUTION

MONTANA ENVIRONMENTAL QUALITY COUNCIL / STATE CAPITOL / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA ENVIRONMENTAL QUALTIY COUNCIL

TIME FRAME

JUNE 1976 TO NOV. 1976

LOCATION

MT

ABSTRACT

A MAJOR OBJECTIVE OF THIS STUDY IS TO PLACE MONTANA'S NATURAL GAS CRISIS IN PERSPECTIVE, TO PROVIDE A FRAMEWORK WITHIN WHICH VARIOUS ALTERNATIVES MAY BE EVALUATED, AND TO STIMULATE REASONED AND COMPETENT PUBLIC DISCUSSION CONCERNING WHAT COULD BE DONE TO SECURE NATURAL GAS SUPPLIES SUFFICIENT TO MEET MONTANA'S SHORT-TERM AND LONG-TERM NEEDS. THE STUDY ADDRESSES MANY ISSUES, INCLUDING: MONTANA'S RELIANCE ON CANADIAN GAS IMPORTS; THE EXTENT TO WHICH THE FUTURE OF MONTANA'S ECONOMY IS DEPENDENT ON THE AVAILABILITY AND COST OF GAS; THE ROLE ENERGY CONSERVATION CAN PLAY IN REDUCING GAS DEMAND, AND HOW IT CAN BE ENCOURAGED IN MONTANA; WHETHER INDUSTRIAL CONSUMERS ARE PLANNING TO SHIFT TO OTHER FUELS, AND HOW MUCH GAS CAN BE FREED THEREBY FOR OTHER USES; AND WHETHER SYNTHETIC GAS CAN BE PRODUCED AND CONSUMED ECONOMICALLY IN MONTANA. (MEO)

REPORTS AND PUBLICATIONS

THOMAS W. FRIZZELL. MONTANA'S NATURAL GAS SUPPLY CRISIS. NOVEMBER 1976. (OUT OF PRINT)

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00000975

PROJECT TITLE

OIL AND GAS BASIC DATA

INVESTIGATORS

RAYMOND R. BURCHETT / HAROLD M. DEGRAW

RESEARCH INSTITUTION

U.S. GEOLOGICAL SURVEY, CONSERVATION DIV. / UNIV. OF NEBRASKA-LINCOLN / LINCOLN, NE 68588

PRIMARY SPONSOR

U.S. GEOLOGICAL SURVEY, CONSERVATION DIV. / UNIV. OF NEBRASKA-LINCOLN / LINCOLN, NE 68588

TIME FRAME

JAN. 1974 TO CONTINUING

LOCATION

NE

ABSTRACT

TO COLLECT, ORGANIZE, INTERPRET AND DISTRIBUTE INFORMATION ABOUT THE OCCURRENCE AND PRODUCTION OF OIL AND GAS IN NEBRASKA.

REPORTS AND PUBLICATIONS

DATA TABULATIONS, OIL FIELD STUDIES, AND STRATIGRAPHIC INVESTIGATIONS. AVAILABLE FROM U.S. GEOLOGICAL SURVEY, CONSERVATION DIV., UNIV. OF NEBRASKA, LINCOLN, NE 68588.

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00000976

PROJECT TITLE

NEW PROCESS TECHNOLOGY - OILSHALE

INVESTIGATORS

W. E. ROBINSON / W. E. HAINES

RESEARCH INSTITUTION

U.S. ERDA, LARAMIE ENERGY RESEARCH CENTER / BOX 3395, UNIVERSITY STATION / LARAMIE, WY 82071

PRIMARY SPONSOR

U.S. ERDA, DIV. OF OIL, GAS AND SHALE TECHNOLOGY
20 MASSACHUSETTS AVE. / WASHINGTON, D.C.

PRIMARY FUNDING AMOUNT

750,000

TIME FRAME

JULY 1974 TO CONTINUING

LOCATION

WY

ABSTRACT

THE OBJECTIVES OF THIS RESEARCH ARE TO PROVIDE ADDITIONAL INFORMATION ABOUT OILSHALE ORGANIC MATERIAL AND TO DEVELOP NEW AND MORE ECONOMICAL METHODS OF CONVERTING OILSHALE KEROGEN TO USEFUL PRODUCTS IN A MANNER THAT HAS MINIMUM ENVIRONMENTAL IMPACT. WHEN POSSIBLE, CONVERSION REACTIONS ARE STUDIED AT THE BENCH-SCALE LEVEL UNTIL SUFFICIENT DATA ARE OBTAINED TO EVALUATE THE MERITS OF THE REACTION. PRESENTLY, FIVE DIFFERENT PHASES OF THE RESEARCH PROBLEM ARE BEING UNDERTAKEN: THE CO-H2O REACTION OF CONVERTING OILSHALE KEROGEN TO SOLUBLE PRODUCTS; THE CHARACTERIZATION OF THE PRODUCTS OBTAINED FROM THE CO-H2O REACTION OF OILSHALE KEROGEN; THE CHARACTERIZATION OF THE ACIDIC COMPONENTS IN KEROGEN OXIDATION PRODUCTS AND BLACK WATERS FROM THE GREEN RIVER FORMATION; THE DEGRADATION OF OILSHALE KEROGEN BY MOLTEN SALTS AT LOW TEMPERATURES AND THE STABILIZATION OF SHALE OIL NAPHTHA BY LOW-TEMPERATURE OXIDATION. THE CHARACTERIZATION OF THE SOLUBLE ORGANIC MATERIAL PRESENT IN OILSHALE RELATIVE TO ORGANIC GEO-

CHEMICAL IMPLICATIONS IS ALSO AN IMPORTANT PART OF THIS STUDY. CONTINUAL DEVELOPMENT OF NEW AND UNTRIED METHODS OF DEGRADING OILSHALE KEROGEN AND THE ELUCIDATION OF STRUCTURAL FEATURES OF THE KEROGEN AND SOLUBLE PITUMEN PRESENT IN OIL SHALE ARE PRIME GOALS OF THIS RESEARCH.

REPORTS AND PUBLICATIONS

W. E. ROBINSON AND J. J. CUMMINS. AN OIL SHALE CONVERSION PROCESS USING CARBON MONOXIDE AND WATER. ERDA. LERC?IRR 75/1, 14 PGS. 1975.

D. E. ANDERS, ET AL. POLAR CONSTITUENTS ISOLATED FROM GREEN RIVER OIL SHALE. GEOCHIM COSMOCHIM ACTA 39, 1423-30. 1975.

W. E. ROBINSON. ORIGIN AND CHARACTERISTICS OF GREEN RIVER OIL SHALE. CH. IN 'OIL SHALE,' ELSEVIER SCI. PUB. CO., AMSTERDAM, P. 63-79. 1976.

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00000977

PROJECT TITLE

CHARACTERIZATION OF NATURAL GAS RESOURCES IN LOW-PERMEABILITY RESERVOIRS OF NORTHERN GREAT PLAINS

PROJECT NUMBER

9410-11911

INVESTIGATORS

DUDLEY D. RICE / C. W. SPENCER

RESEARCH INSTITUTION

U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV. / BOX 25046,
MS-951 / DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY SPONSOR

U.S. ERDA

TIME FRAME

OCT. 1976 TO OCT. 1981

LOCATION

MT ND SD

ABSTRACT

WITH THE INCREASING DEMAND FOR ENERGY RESOURCES IN THE UNITED STATES, EXPLORATION MUST BE DIRECTED TOWARD SUBECONOMIC RESOURCES. RECENT RESOURCE ESTIMATES HAVE INDICATED THAT MAJOR GAS ACCUMULATIONS ARE ENTRAPPED IN TIGHT RESERVOIRS IN THE ROCKY MOUNTAIN REGION. TO DATE, MOST STUDIES HAVE FOCUSED ON RECOVERY TECHNOLOGY. BASIC GEOLOGICAL STUDIES, SUCH AS THE ONE INITIAED, HAVE NOT BEEN DONE. BUT WILL AID STIMULATION AND RECOVERY RESEARCH PLUS HELP IN OBTAINING MORE ACCURATE RESOURCE ESTIMATES. THE PURPOSE OF THIS PROJECT IS TO CHARACTERIZE THE TIGHT RESERVOIRS OF THE NORTHERN GREAT PLAINS. THIS AREA IS IMPORTANT BECAUSE IT MAY CONTAIN AS MUCH AS 100 TCF OF NATURAL GAS AT SHALLOW DEPTHS (LESS THAN 1,200M). THIS TYPE OF NATURAL GAS, WHICH WAS GENERATED BY ANAEROBIC BACTERIA AT SHALLOW DEPTHS IN ACCUMULATING SEDIMENTS, HAS BEEN GENERALLY OVERLOOKED IN THE PAST. HOWEVER, RECENT DISCOVERIES IN CANADA AND THE USSR HAVE SHOWN THE SIGNIFICANCE OF THESE BIOGENIC GAS ACCUMULATIONS. IN ADDITIONS, THIS GAS IS ENTRAPPED IN THIN, DISCONTINUOUS SILTSTONES AND SANDSTONES DEPOSITED IN AN OFFSHORE SHELF ENVIRONMENT, A TYPE OF DEPOSIT THAT HAS BEEN RELATIVELY UNSTUDIED IN THE GEOLOGIC RECORD. (MEO)

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00000978

PROJECT TITLE

A STUDY OF THE POTENTIAL FOR ADDITIONAL NATURAL GAS AND CONDENSATE PRODUCTION FROM MONTANA FORMATIONS

INVESTIGATORS

DR. MAHER A. IBRAHIM

RESEARCH INSTITUTION

MONTANA COLLEGE OF MINERAL SCIENCES AND TECHNOLOGY,
DEPT. OF PETROLEUM ENG. / BUTTE, MT 59701

PRIMARY SPONSOR

U.S. FEDERAL ENERGY ADMINISTRATION

PRIMARY FUNDING AMOUNT

3,000 (THIS SUM IS INCLUDED IN THE OVERALL FIGURE GIVEN FOR THE NORTHERN TIER CRUDE OIL STUDY.)

TIME FRAME

MAY 1976 TO JULY 1976

STATUS

COMPLETED

LOCATION

MT

ABSTRACT

THE MAIN PURPOSE OF THIS STUDY IS TO INDEPENDENTLY EXAMINE EXISTING INFORMATION ON NATURAL GAS PRODUCTION, EXPLORATION, RESERVES AND EXPECTED NEW DISCOVERIES. RESULTS WILL HELP TO DETERMINE THE POSSIBILITIES OF COMPLETE OR PARTIAL REPLACEMENT OF THE CURTAILED CANADIAN REFINERY FEEDSTOCKS BY MONTANA PRODUCED FOSSIL HYDROCARBONS. THE OBJECTIVES CAN BE SUMMARIZED AS AN EFFORT TO FIND ANSWERS TO SOME OR ALL OF THE FOLLOWING QUESTIONS: 1. WHAT ARE THE POSSIBILITIES OF NEW GAS-CONDENSATE FIELDS DISCOVERIES? 2. WHAT ARE THE POSSIBILITIES OF THE INCREASE OF MONTANA CRUDE OIL PRODUCTION THROUGH EITHER NEW OIL DISCOVERIES OR USE OF ADVANCED RECOVERY METHODS APPLIED ON PRESENT PRODUCING FIELDS? 3. TO WHAT DEGREE MIGHT THE EXPECTED DISCOVERIES KEEP PACE WITH THE ANNOUNCED CANADIAN PHASEOUT OF EXPORTS OF REFINERY FEEDSTOCKS TO MONTANA? 4. WHAT ARE SUFFICIENT INDUSTRIAL CONDITIONS TO ACHIEVE THE GOAL OF COMPLETE REPLACEMENT OF CANADIAN EXPORTS THROUGH MONTANA PRODUCED FOSSIL HYDROCARBONS? (MEO)

STUDY AFFILIATION
PART OF 'NORTHERN TIER CRUDE OIL STUDY,' MONTANA ENERGY ADVISORY COUNCIL
REPORTS AND PUBLICATIONS
UNDISCOVERED NATURAL GAS RESOURCES OF MONTANA. JULY, 1976. AVAILABLE FROM THE MONTANA ENERGY OFFICE.

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00000979
PROJECT TITLE
ECONOMIC ANALYSIS OF OIL REFINING IN MONTANA
INVESTIGATORS
PAUL E. POLZIN
RESEARCH INSTITUTION
UNIV. OF MONTANA, BUREAU OF BUSINESS AND ECONOMIC RESEARCH
MISSOULA, MT 59801
PRIMARY SPONSOR
U.S. FEDERAL ENERGY ADMINISTRATION
PRIMARY FUNDING AMOUNT
2,886
TIME FRAME
MAY 1976 TO JULY 1976
LOCATION
MT
ABSTRACT
THIS TWO PART STUDY WILL PROVIDE: 1. AN OVERVIEW OF OIL REFINING IN MONTANA, INCLUDING HISTORIC TRENDS IN OUTPUT, EMPLOYMENT, AND SOURCES OF CRUDE OIL AND CHARACTERISTICS OF THE OIL REFINING INDUSTRY; 2. PROJECTED IMPACT OF ALTERNATIVE SCENARIOS: PROJECTED DECLINES IN EMPLOYMENT AND EARNING FOR MONTANA AND BILLINGS AREA OF ALTERNATIVE SCENARIOS CONCERNING FUTURE DISTRIBUTION OF CRUDE OIL TO MONTANA REFINERIES. THE SCENARIOS WILL BE DEVELOPED BY THE MONTANA ENERGY ADVISORY COUNCIL. THIS RESEARCH IS ADMINISTERED BY THE MONTANA ENERGY ADVISORY COUNCIL WITH FEA FUNDS. (MEO)
STUDY AFFILIATION
PART OF 'NORTHERN TIER CRUDE OIL STUDY,' MONTANA ENERGY ADVISORY COUNCIL.
REPORTS AND PUBLICATIONS
FINAL REPORT: THE ECONOMIC IMPORTANCE OF MONTANA REFINERIES AND PROJECTED IMPACTS OF CURTAILMENTS IN CANADIAN PETROLEUM IMPORTS. JULY 1976. AVAILABLE FROM THE MONTANA ENERGY OFFICE.

00000980
PROJECT TITLE
RENEWABLE ALTERNATIVE ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM
INVESTIGATORS
CHARLES W. GREEN
RESEARCH INSTITUTION
MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / 32 S. EWING / HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
PRIMARY FUNDING AMOUNT
1976 - 489,000 / 1977 - 1,080,000
TIME FRAME
JAN. 1975 TO CONTINUING
LOCATION
MT
ABSTRACT
THE RENEWABLE ALTERNATIVE ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM WAS AUTHORIZED IN 1975 BY SENATE BILL 86. UNDER THE PROGRAM, ADMINISTERED BY THE ENERGY PLANNING DIVISION OF THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, GRANTS ARE AWARDED FOR NON-COMMERCIAL PROJECTS WHICH RESEARCH, DEVELOP, AND DEMONSTRATE THE USE OF RENEWABLE ENERGY SOURCES SUCH AS SOLAR, WIND, GEOTHERMAL, AND BIOMASS. ALL RESIDENT MONTANA INDIVIDUALS AND ORGANIZATIONS ARE ELIGIBLE TO APPLY FOR GRANTS. GRANTS MAY BE GIVEN FOR A PERIOD OF NO LONGER THAN ONE YEAR BUT MAY BE RENEWED. FUNDING FOR THE RENEWABLE ALTERNATIVE ENERGY PROGRAM IS DERIVED FROM 2 1/2% PER YEAR OF THE STATE COAL SEVERANCE TAX THROUGH 1979; THEREAFTER, THE AMOUNT AVAILABLE WILL BE 4% PER YEAR. (MEO)
REPORTS AND PUBLICATIONS
EACH PROJECT WILL RESULT IN A FINAL REPORT TO THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION. THESE REPORTS WILL BE USED TO PRODUCE INFORMATION PAMPHLETS AND BROCHURES TO INFORM THE GENERAL PUBLIC ABOUT THE USE OF THE VARIOUS RENEWABLE ENERGY SYSTEMS AROUND MONTANA.

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00000981
PROJECT TITLE
NEW WESTERN ENERGY SHOW
PROJECT NUMBER
RAE 13
INVESTIGATORS
KYE COCHRAN
RESEARCH INSTITUTION
ALTERNATIVE ENERGY RESOURCES ORGANIZATION (AERO)
435 STAPLETON BUILDING / BILLINGS, MT 59101
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
1976 - 24,480 / 1977 - 44,800
TIME FRAME
JUNE 1976 TO SEPT. 1976 / JUNE 1977 TO SEPT. 1977 TO CONTINUING
LOCATION
MT
ABSTRACT
THE NEW WESTERN ENERGY SHOW WILL BRING THE WORKSHOP-PLUS-INFORMATION APPROACH TO A DOZEN COMMUNITIES AROUND MONTANA, SPENDING 2-4 DAYS IN EACH AREA. THEY WILL (1) DIRECT THE BUILDING OF A SOLAR WATER HEATER, AND LEAVE IT TO BE INSTALLED IN A LOCAL BUILDING; (2) DISPLAY OPERATIONAL RENEWABLE ENERGY EQUIPMENT (WIND GENERATORS, SOLAR PANELS, A METHANE DIGESTER, SMALL HYDRO SYSTEMS); (3) DISTRIBUTE RELEVANT BOOKS AND PAMPHLETS ON ENERGY USE AND CONSERVATION; (4) ILLUSTRATE GRAPHICALLY THE APPLICATIONS OF BIO-GAS TECHNOLOGY ON HOMESTEAD, FEEDLOT, MUNICIPAL SEWAGE AND OTHER LEVELS; (5) DEMONSTRATE SIMPLE, LOW-COST ENERGY-SAVING TECHNIQUES; (6) ENTERTAIN AND INFORM AUDIENCES WITH COUNTRY-FOLK-STYLE MUSIC AND THEATRICAL PRESENTATIONS--ALL WITH ENERGY-RELATED THEMES. BY BRINGING THE WORKSHOP/INFORMATION DISSEMINATION FORMAT PLUS A PROGRAM OF EDUCATIONAL/ENTERTAINING DRAMA TO RURAL TOWNS IN MONTANA, THEY EXPECT TO REACH A LARGE POPULATION WHICH WOULD OTHERWISE HAVE DIFFICULTY IN OBTAINING INFORMATION ON RENEWABLE ENERGY, AND THEY HOPE TO CATALYZE COMMUNITY EFFORTS TOWARD ENERGY CONSERVATION AND UTILIZATION OF RENEWABLE ENERGY SOURCES. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00000982
PROJECT TITLE
JOCKO HOLLOW ALTERNATIVE ENERGY EFFORT

PROJECT NUMBER
RAE 41
INVESTIGATORS
JIM ANDERSON / JOCKO HOLLOW ALTERNATIVE ENERGY EFFORT / ARLEE, MONTANA 59821
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
20,000
TIME FRAME
MAR. 1976 TO MAR. 1977
LOCATION
MT - LAKE CO.: ARLEE
ABSTRACT

THIS PROJECT WOULD: (1) ESTABLISH A CENTER TO ACT AS A RESOURCE CENTER AND CLEARINGHOUSE FOR ALTERNATIVE ENERGY INTERESTS IN WESTERN MONTANA; (2) CONSTRUCT PHYSICAL WORKING MODELS DESIGNED TO DEMONSTRATE ALTERNATIVE ENERGY PRACTICALITY AND RELIABILITY; (3) CONDUCT INVESTIGATIONS ON THE EXISTING STATE OF THE ART; AND (4) DEVELOP A FRAMEWORK FOR FUTURE PROJECTS. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000983
PROJECT TITLE
AN EXPERIMENTAL HEAT CONTROL AND ENERGY MONITORING SYSTEM
PROJECT NUMBER
RAE 180
INVESTIGATORS
DONALD K. WEAVER, JR. / 1820 S. 7TH AVE. / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
6,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - GALLATIN CO.: BOZEMAN
ABSTRACT

THIS PROJECT WILL ASSEMBLE A LOW-COST DATA ACQUISITION SYSTEM AND USE IT TO MONITOR AND CONTROL ALL ENERGY-RELATED PARTS OF THE OPERATION OF AN EXISTING RESIDENCE. THIS WILL INCLUDE CONTINUOUS MONITORING AND RECORDING OF GAS AND ELECTRICITY, TEMPERATURE BOTH OUTSIDE AND AT VARIOUS INSIDE LOCATIONS, WIND AND SOLAR RADIATION. THE PROJECT WILL ALSO ATTEMPT TO REDUCE PEAK ENERGY DEMANDS BY CLOSING OFF PARTS OF THE HOUSE AND USING A WOOD BURNING STOVE OR OTHER SUPPLEMENTAL HEAT TO HELP CARRY PART OF THE LOAD. THIS PROGRAM WILL DEVELOP THE NECESSARY INSTRUMENTATION AND CONTROL TO MAKE COMPUTER CONTROL OF ENERGY USE ECONOMICAL EVEN IN RELATIVELY SMALL BUILDINGS. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000984
PROJECT TITLE
A PROJECT TO DEVELOP AN ENERGY USE AND DESIGN COURSE FOR BUILDING CONTRACTORS
PROJECT NUMBER
RAE 182
INVESTIGATORS
JOHN A. CHARLES / ROBERT O. WARRINGTON
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF MECHANICAL ENGINEERING / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
21,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - GALLATIN CO.: BOZEMAN
ABSTRACT

IT IS THE PURPOSE OF THIS PROJECT TO DEVELOP AND CONDUCT A SHORT COURSE FOR BUILDING CONTRACTORS AND OTHERS TO FAMILIARIZE THEM WITH THE THEORY OF ENERGY USAGE AND PRESENT CHANGES IN BUILDING DESIGN/CONSTRUCTION WHICH WOULD LEAD TO THE CONSTRUCTION OF MORE ENERGY-EFFICIENT BUILDINGS SUITED FOR USE WITH BOTH CONVENTIONAL AND ALTERNATE ENERGY SOURCES. THE COURSE WOULD BE TAUGHT BY MECHANICAL ENGINEERING FACULTY MEMBERS AT MONTANA STATE UNIVERSITY AS BOTH A NIGHT COURSE AT MONTANA STATE UNIVERSITY, AND A CORRESPONDENCE COURSE FOR PERSONS REMOVED FROM THE BOZEMAN AREA.

ONE COURSE WOULD HAVE THREE PRIMARY GOALS: 1. TO INTRODUCE BUILDERS TO THE ENGINEERING THEORY OF ENERGY, INCLUDING ITS GENERATION, USAGE, AND CONCEPTS OF EFFICIENCY; 2. TO ENCOURAGE A CRITICAL EVALUATION OF CURRENT BUILDING PRACTICES AS THEY AFFECT ENERGY USAGE; AND 3. TO INVESTIGATE THE POSSIBILITY FOR IMPROVING THE ENERGY EFFICIENCY OF BUILDINGS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 56).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

00000985
PROJECT TITLE
SUPPLEMENTARY SOLAR HEATING OF DOMESTIC WATER NEEDS IN APARTMENTS, INSTITUTIONS, AND OTHER LARGE USERS
PROJECT NUMBER
RAE 06
INVESTIGATORS
KENNETH NORDTVEDT, JR.
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF PHYSICS / BOZEMAN, MT
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT
PRIMARY FUNDING AMOUNT
4,000
TIME FRAME
DEC. 1976 TO DEC. 1977
LOCATION
MT - GALLATIN CO. - BOZEMAN
ABSTRACT
THIS PROJECT WILL CONSTRUCT, INSTRUMENT, OPERATE, AND STUDY THE TECHNOLOGY AND ECONOMICS OF A SOLAR ENERGY PRE-HEATER FOR THE DOMESTIC HOT WATER SYSTEM OF AN ELEVEN UNIT APARTMENT BUILDING IN BOZEMAN. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00000986
PROJECT TITLE
RESIDENTIAL SOLAR HEATING AND COOLING DEMONSTRATION--BIG VALLEY SOLAR HOUSE
PROJECT NUMBER
RAE 09
INVESTIGATORS
JAMES E. TAYLOR
RESEARCH INSTITUTION
JAMES E. TAYLOR & ASSOCIATES / 2715 AIRPORT WAY / HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
12,750
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - LEWIS AND CLARK CO. - HELENA
ABSTRACT
THIS IS A PROJECT TO INSTALL, TEST AND EVALUATE THE EFFECTIVENESS AND ECONOMIC FEASIBILITY OF A SOLAR-ASSISTED HEAT PUMP SPACE HEATING SYSTEM, SOLAR-ASSISTED DOMESTIC HOT WATER HEATING SYSTEM, AN ENERGY-EFFICIENT FIREPLACE, AND AN ENERGY EFFICIENT STORAGE COOLING SYSTEM IN A SINGLE FAMILY RESIDENCE LOCATED IN THE NORTH HELENA VALLEY, MONTANA. THE MAIN OBJECTIVE OF THIS PROJECT IS TO DEMONSTRATE AND MAKE KNOWN THE FEASIBILITY OF USING SOLAR ENERGY IN THIS TYPE OF SYSTEM. SECONDARY TO THIS GOAL IS TO ADD TO THE DATA SOURCE THAT WILL PERMIT DESIGNERS AND CONTRACTORS TO INCORPORATE SOLAR AND ENERGY CONSERVING SYSTEMS INTO THEIR WORK. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00000987
PROJECT TITLE
DEMONSTRATION OF THE FEASIBILITY OF TOTAL HOUSEHOLD ENERGY INDEPENDENCE FROM CONVENTIONAL FOSSIL-FUEL SOURCES
PROJECT NUMBER
RAE 19
INVESTIGATORS
GAIL L. OWEN / 7001 BITTERROOT ROAD, ROUTE 5 / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
11,362
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - MISSOULA CO.
ABSTRACT
THE PROJECT WILL ATTEMPT TO DEMONSTRATE THE FEASIBILITY OF SUPPLYING THE MAJORITY OF NECESSARY HOUSEHOLD SPACE

AND WATER HEATING FROM ALTERNATIVE ENERGY SOURCES, PRINCIPALLY BY MEANS OF: (1) EXTRAORDINARY INSULATION; (2) A HEAT PUMP, (3) TWO SOLAR FLAT PLATE COLLECTORS, AND (4) INTEGRAL DESIGN, CONTROL, AND OPERATION.

AS A DEMONSTRATION PROJECT, THIS PROPOSAL IS CHIEFLY CONCERNED WITH ADVANCING THE PRACTICAL RATHER THAN THE TECHNOLOGICAL STATE OF THE ART VIS-A-VIS SOLAR POWER DEVELOPMENT FOR HOUSEHOLD USE. IT WILL DO SO BY DEMONSTRATING THAT: (A) THERE ARE ADEQUATE MEANS TO MEET HOME HEATING NEEDS FROM RENEWABLE ENERGY SOURCES; (B) THESE MEANS CAN READILY BE PURCHASED OR FABRICATED FROM AVAILABLE COMPONENTS; AND (C) THEY CAN BE INSTALLED AND OPERATED ECONOMICALLY AND WITH RELATIVE EASE. (MEO)

STUDY AFFILIATION

PART OF MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000988

PROJECT TITLE

A RESIDENCE HEATED BY SOLAR ENERGY

PROJECT NUMBER

RAE 32

INVESTIGATORS

CHARLES L. HERNDON

RESEARCH INSTITUTION

MONTANA COLLEGE OF MINERAL SCIENCES AND TECHNOLOGY
BUTTE, MT 59701

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

15,000

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - SILVER BOW CO. - BUTTE

ABSTRACT

MUCH RESEARCH AND DEVELOPMENT HAS BEEN DONE IN CREATING THE VARIOUS COMPONENTS NECESSARY TO OBTAIN COMFORT HEATING FROM SOLAR ENERGY. IN CLIMATES AS BUTTE, MT MUCH HEATING AND LIMITED COOLING IS NECESSARY DURING THE YEAR. USING ALL THE COMPONENTS OF SOLAR ENERGY UTILIZATION TO OBTAIN COMFORT HEATING IS ADEQUATELY DONE ONLY WHEN THESE COMPONENTS ARE ECONOMICALLY INTEGRATED INTO A CONVENTIONAL FOSSIL-FUEL ENERGY HEATING SYSTEM. THE REASON BEING THAT IN THIS NORTHERN CLIMATE A SYSTEM THAT COULD RELY TOTALLY ON SOLAR ENERGY WOULD BE EXCESSIVELY LARGE AND COSTLY. THE PROPOSED SYSTEM WOULD ACHIEVE DIRECT AND INDIRECT UTILIZATION OF SOLAR ENERGY ALONG WITH A CONVENTIONAL WARM-AIR HEATING SYSTEM.

IN ADDITION TO EVALUATION VARIOUS COMPONENTS OF A SOLAR ENERGY UTILIZATION SYSTEM, VARIOUS CONTROL ARRANGEMENTS AND SEQUENCING WOULD BE STUDIED. ONE END RESULT WOULD BE A COMPUTER PROGRAM DEVELOPED FROM DATA OF VARIOUS COMPONENTS TESTED AND SYSTEM OPERATIONAL DATA THAT WOULD ALLOW EASY VARIATION OF THE SYSTEM PARAMETERS TO OPTIMIZE THE SIZE OF THE VARIOUS SOLAR COMPONENTS. THE HEATING SYSTEM PLANNED WOULD USE A CIRCULATING WARM AIR SYSTEM, TRANSFERRING HEAT FROM THE THERMAL STORAGE TANK TO THE SUPPLY AIR BY A FINNED COIL IN THE AIR HANDLING UNIT. A SECOND FINNED COIL IN THE AIR HANDLING UNIT WOULD DRAW ENERGY FROM A FOSSIL FUELED WATER BOILER WHEN SUFFICIENT SOLAR ENERGY WAS NOT AVAILABLE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000989

PROJECT TITLE

DEVELOPMENT AND DEMONSTRATION OF A NEW CONCEPT IN SOLAR-POWERED SPACE HEATING

PROJECT NUMBER

RAE 33

INVESTIGATORS

SHERMAN S. COOK, JR. / LINCOLN, MT 59639

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

10,500

TIME FRAME

JAN. 1976 TO JAN. 1977

LOCATION

MT - LEWIS & CLARK CO.; LINCOLN

ABSTRACT

THIS PROJECT WILL CONTINUE DEVELOPMENT AND DEMONSTRATION OF A NEW CONCEPT IN SOLAR-POWERED SPACE HEATING ADAPTED TO BOTH NEW CONSTRUCTION AND TO SOME EXISTING BUILDINGS. A PORTABLE SELF-CONTAINED DEMONSTRATION UNIT WILL BE MADE AVAILABLE TO SCHOOLS, ASSOCIATIONS OF BUILDERS AND ARCHITECTS AND ANYONE ELSE WITH AN INTEREST IN PROMOTING EARLY AND WIDESPREAD USE OF SOLAR HEATING.

THE UNIT WILL CONTAIN AN 8-GALLON INSULATED TANK, COLLECTOR PANEL, CIRCULATOR PUMP AND THERMOMETER. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000990

PROJECT TITLE

SOLAR INSOLATION MEASUREMENT, MONTANA

PROJECT NUMBER

RAE 46

INVESTIGATORS

CHARLESS FOWLKES

RESEARCH INSTITUTION

FOWLKES ENGINEERING / 1820 S. 7TH / BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

29,790

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - YELLOWSTONE CO.: BILLINGS / GALLATIN CO.: BOZEMAN / GLACIER CO.: BROWNING / SILVER BOW CO.: BUTTE / ROSEBUD CO.: COLSTRIP / BEAVERHEAD CO.: DILLON / VALLEY CO.: GLASGOW / DAWSON CO.: GLENDIVE / CASCADE CO.: GREAT FALLS / RAVALLI CO.: HAMILTON / WHEATLAND CO.: HARLOWTON / HILL CO.: HAVRE / LEWIS & CLARK CO.: HELENA / FLATHEAD CO.: KALISPELL / FERGUS CO.: LEWISTOWN / LINCOLN CO.: LIBBY / CUSTER CO.: MILES CITY / MISSOULA CO.: MISSOULA / LAKE CO.: POLSON / GALLATIN CO.: WEST YELLOWSTONE

ABSTRACT

THIS PROGRAM WILL MEASURE SOLAR RADIATION AT 20 LOCATIONS IN MONTANA. THE MEASUREMENTS ARE INTENDED TO BROADEN THE SOLAR INSOLATION DATA BASE FOR MONTANA IN ORDER TO IMPLEMENT AND ACCELERATE THE UTILIZATION OF SOLAR ENERGY. THE MEASUREMENTS ARE ORIENTED TOWARD PROVIDING SPECIFIC DATA FOR COMPUTING THE ENERGY GAIN OF FLAT-PLACE COLLECTORS. THE MEASURING STATIONS WILL BE LOCATED AT SELECTED MONTANA HIGH SCHOOLS. SCIENCE TEACHERS AND STUDENTS WILL ASSIST IN THE OPERATION OF THE MEASURING EQUIPMENT. THE COST OF GETTING THIS ESSENTIAL DATA IS CONSEQUENTLY SMALL. IN ADDITION TO THE DATA, IMPORTANT EDUCATIONAL AND PROMOTIONAL BENEFITS WILL BE PROVIDED BY THIS PROGRAM. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000991

PROJECT TITLE

TO DEMONSTRATE THE FEASIBILITY OF UTILIZATION OF SOLAR ENERGY IN THE BILLINGS MICRO-CLIMATE

PROJECT NUMBER

RAE 58

INVESTIGATORS

JAMES W. COONS / 208 N. 29TH, SUITE 21 / BILLINGS, MT

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

11,000

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - YELLOWSTONE CO.: BILLINGS

ABSTRACT

THE PURPOSE OF THIS PROJECT WILL BE TO CONSTRUCT A SOLAR ENERGY COLLECTION AND HEATING SYSTEM FOR A NEW HOME. THE SYSTEM WILL INCLUDE ACTIVE SPACE HEATING, DOMESTIC HOT WATER, AND SPACE COOLING SOLAR FEATURES. (MEO)

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000992

PROJECT TITLE

SOLAR COLLECTOR, TRACING MECHANISM, AND STORAGE

PROJECT NUMBER

RAE 64

INVESTIGATORS

RICHARD P. SHERIDAN / DALE E. HORTON

RESEARCH INSTITUTION

UNIV. OF MONTANA, DEPT. OF BOTANY / MISSOULA, MT 59801

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
8,000
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT

THIS EFFORT WILL INCLUDE RESEARCH, DEVELOPMENT, AND DEMONSTRATION OF A SOLAR COLLECTOR, HEAT STORAGE AND SPACE HEATER SYSTEM. SUCH A SYSTEM WILL BE DESIGNED SO THAT CONSTRUCTION OF HARDWARE MAY BE ACCOMPLISHED IN THE HOME SHOP AT AN ECONOMICAL PRICE. FURTHER, THE ENERGY INPUT FOR THE ORIGINAL MANUFACTURING OF HARDWARE COMPONENTS CAN BE JUSTIFIED ON THE ENERGY RETURNED FOR SPACE HEATING. INNOVATIVE CONTRIBUTIONS INCLUDE A HEAT-SINK MODIFICATION TO A FLAT-PLATE COLLECTOR. THE DEVELOPMENT OF A GLASS-LESS COLLECTOR, AND A COLLECTOR WITH A MODIFIED REFLECTOR. A MULTI-UNIT HEAT STORAGE SYSTEM AND A SOLAR TRACKING SENSOR ARE ALSO PROPOSED. THIS PROPOSAL IS TRIPHASIC: RESEARCH, APPLICATION, AND DEMONSTRATION. IN ADDITION TO THE FINISHED WORKING SOLAR SYSTEM, A MAJOR CONTRIBUTION WHICH THIS GRANT PROPOSAL OFFERS IS A PROFESSIONAL CALIBER LAYMAN'S HANDBOOK WHICH WILL BE CONCERNED NOT ONLY WITH HARDWARE AND CONSTRUCTION, BUT ALSO WITH APPLICABILITY AND AVAILABILITY OF MATERIALS AND COSTS IN THIS REGION. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000993
PROJECT TITLE
INSTALLATION OF HOT AIR SOLAR COLLECTOR SYSTEMS
PROJECT NUMBER
RAE 69
INVESTIGATORS
KEN BOGGS / BILL DELP / ROGER KING
RESEARCH INSTITUTION
DISTRICT 11 HUMAN RESOURCES COUNCIL / 207 EAST MAIN / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
26,875
TIME FRAME
JAN. 1977 TO JAN. 1978
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT

THIS IS A PROJECT TO CONSTRUCT AND INSTALL A HOT AIR SOLAR COLLECTOR SYSTEM IN A LIMITED NUMBER OF LOW-INCOME HOMES. THE CONTRACTING AGENCY WILL DEVELOP A PRACTICAL MODEL OF THE COLLECTOR SYSTEM AND WILL DEMONSTRATE THE APPLICATION IN TEN RESIDENCES. THE KEY COMPONENT IN THIS SYSTEM IS A SOLAR COLLECTOR FROM A NASA DESIGN. (PANELS CAN BE PRODUCED FOR LESS THAN A $1.00 PER SQ.FT.. AND EACH SQ. FT. CAN PROVIDE NEARLY 100,000 BTU'S DURING A HEATING SYSTEM IN MONTANA). THE COUNCIL INTENDS TO DEMONSTRATE THAT SUCH A SYSTEM CAN PROVIDE AT LEAST 40% OF A HOME'S HEAT REQUIREMENT AT A COST COMPARABLE WITH CURRENTLY POPULAR SUPPLEMENTAL HEATING SYSTEM. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00000994
PROJECT TITLE
TO DEMONSTRATE THE USE OF SOLAR ENERGY TO HEAT A NEW HOME
PROJECT NUMBER
RAE 79
INVESTIGATORS
MIKE STOLTZ / 109 5TH HIGHLAND PARK / GLENDIVE, MT 59330
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
3,805
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - DAWSON CO.; GLENDIVE
ABSTRACT

THE PROJECT PROPOSES TO BUILD AND DEMONSTRATE A SOLAR HEATING SYSTEM WHICH HAS BEEN EMPLOYED IN OTHER AREAS OF THE U.S. THIS WILL BE DONE BY CONSTRUCTING A UNIT UTILIZING BEER CANS FOR THE COLLECTOR SURFACE WITH WOOD FRAMING AND A VINYL OR FIBERGLASS COVERING. ACCORDING TO SOME DATA THIS TYPE OF COLLECTOR HAS PRODUCED AS MUCH HEAT AS THE MOST EXPENSIVE ON THE MARKET.

IF THE PROJECT IS SUCCESSFUL IT IS EXPECTED THAT A LAYMAN COULD BUILD A SOLAR COLLECTOR THAT WOULD PROVIDE 30% OF HIS HEAT FOR A HOME FOR $1,500-1,600. AS BETTER STORAGE FACILITIES ARE DEVELOPED, THIS PROJECT COULD MEET 30%-50% OF THE HOMEOWNER'S HEATING NEEDS. THIS PROJECT IS EXTREMELY COMPATIBLE WITH THE ENVIRONMENT AND USES A RESOURCE, BEER CANS, THAT ARE NOW A SOLID WASTE PROBLEM IN MONTANA. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00000995

PROJECT TITLE

SOLAR/HEAT PUMP IN HOME

PROJECT NUMBER

RAE 84

INVESTIGATORS

WILLIAM B. TOMLINSON / 403 COLORADO AVE. / GREAT FALLS, MT 59404

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

7,166.50

TIME FRAME

DEC. 1976 TO DEC. 1977

LOCATION

MT - CASCADE CO.: GREAT FALLS

ABSTRACT

THIS WILL BE A DEMONSTRATION PROJECT FOR A LOW-COST, HOME-MADE SOLAR HEATING SYSTEM WHICH WILL INCORPORATE A HEAT PUMP. THE MAJOR OBJECTIVES WILL BE TO: (1) PROVE THAT A SOLAR SYSTEM CAN BE BUILT BY MANY INDIVIDUALS THAT WILL DO THE REQUIRED JOB FOR LESS THAN THE $10-$20 PER SQ. FT. OF THE COMMERCIAL PATENTED COLLECTOR SYSTEM; (2) KNOW HOW LONG A LARGE VOLUME OF HEAT CAN BE STORED BY SUCH A STORAGE TANK. FIGURING A TEMPERATURE RANGE OF FROM 75 DEGREES F TO 160 DEGREES F THIS TANK AND CONCRETE AND ROCK COULD RETAIN APPROXIMATELY 5,500,000 BTU OF HEAT. THIS SYSTEM IS INTENDED TO CUT USE OF NATURAL GAS 75% THIS YEAR AND COMPLETELY NEXT YEAR. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT FROM THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000996

PROJECT TITLE

SOLAR COLLECTOR IN CONJUNCTION WITH HEAT PUMP FOR RESIDENTIAL HEATING

PROJECT NUMBER

RAE 90

INVESTIGATORS

DAVID LEAVENGOOD / BRIDGER CANYON R.R. 2 / BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

10,500

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - GALLATIN CO.: BOZEMAN

ABSTRACT

THIS PROPOSAL IS DEALING WITH SOLAR ENERGY AS AN ACTIVE HEATING SOURCE TO BE USED IN CONJUNCTION WITH AN ELECTRIC HEAT PUMP USING OUTDOOR AIR AS A HEAT SOURCE AND HEAT SINK WITH AIR AS A DISTRIBUTION FLUID. THE PROJECT WILL USE SOLAR ENERGY AS A SOURCE FOR PREHEATING AIR ENTERING THE CONDENSOR SIDE OF THE HEAT PUMP. THIS PREHEATING IS DONE IN ORDER TO MAINTAIN THE HEAT PUMP'S EFFICIENCY WHEN EXTERIOR TEMPERATURES DROP BELOW 20 DEGREES F, OR AT THOSE TIMES WHEN THE EFFICIENCY OF THE HEAT-PUMP FALLS. (MEO)

STUDY AFFILIATION

PART OF THE MONANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, DEPT. OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000997

PROJECT TITLE

FEASIBILITY AND PRE-ENGINEERING PLANNING OF SOLAR APPLICATION FOR A NEW JUNIOR-SENIOR HIGH SCHOOL IN BELGRADE, MONTANA

PROJECT NUMBER
RAE 91
INVESTIGATORS
RALPH V. KROON
RESEARCH INSTITUTION
BELGRADE PUBLIC SCHOOLS, SCHOOL DISTRICT #44 / BOX 166 / BELGRADE, MT 59714
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
10,750
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - GALLATIN CO.; BELGRADE
ABSTRACT
THIS PROJECT IS A FEASIBILITY AND PRE-ENGINEERING STUDY FOR SOLAR HEAT APPLICATION TO A NEW JUNIOR/SENIOR HIGH SCHOOL IN BELGRADE, MONTANA TO BE CONSTRUCTED IN 1977. THIS STUDY IN ADDITION TO PROVIDING THE NECESSARY DATA FOR A SOLAR AIDED BUILDING WILL PROVIDE OTHER MONTANA COMMUNITIES DESIRING TO BUILD A SOLAR SUPPLEMENTED SCHOOL WITH A PROCESS MODEL. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000998
PROJECT TITLE
SOLAR ENERGY DEMONSTRATION PROJECT
PROJECT NUMBER
RAE 92
INVESTIGATORS
L. CLARK MACDONALD / BOOTLEGGER TRAIL / GREAT FALLS, MT 59404
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
8,743.70
TIME FRAME
NOV. 1976 TO NOV. 1977
LOCATION
MT - CASCADE CO.; GREAT FALLS
ABSTRACT
THE PROJECT WILL COMBINE SOLAR FLAT PLATE COLLECTORS, INCREASED INSULATION, A HEAT PUMP AND WATER HEAT STORAGE SYSTEM FITTED TO AN EXISTING FARM HOME. THE MAJOR OBJECTIVES OF THIS PROJECT ARE TO: KEEP COST FACTORS TO A MINIMUM AND YET PRODUCE A SYSTEM THAT WILL BE AS EFFICIENT, MAINTENANCE FREE, AND AUTOMATIC AS POSSIBLE; AROUSE INTEREST AMONG FRIENDS AND NEIGHBORS IN NO. MONTANA SO THAT THEY WILL GAIN THE NECESSARY CONFIDENCE TO BUILD A SYSTEM OF THEIR OWN; TO CUT NATURAL GAS HEATING BILL BY 65% IN EACH BUILDING. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT FROM THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00000999
PROJECT TITLE
SOLAR RETROFITTING DEMONSTRATION PROJECT
PROJECT NUMBER
RAE 101
INVESTIGATORS
DENNIS W. HOWARD / RIVER ROAD / GLENDIVE, MT 59330
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
6,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - DAWSON CO.; GLENDIVE
ABSTRACT
PROJECT GOALS: (1) TO RETROFIT AN EXISTING SINGLE FAMILY HOME WITH A SIMPLE COMMERCIALLY AVAILABLE SOLAR HEATING SYSTEM; (2) TO DEMONSTRATE TO THE PUBLIC THAT SOLAR HEATING CAN SIGNIFICANTLY CURTAIL USAGE OF NON-RENEWABLE FUELS FOR HEATING, AND SAVE THE HOMEOWNER MONEY, EVEN THOUGH THE HOME WAS NOT ORIGINALLY DESIGNED WITH ENERGY CONSERVATION IN MIND; (3) TO DEMONSTRATE THAT THE AVERAGE HANDYMAN IS CAPABLE OF INSTALLING MOST, IF NOT ALL, OF A SOLAR HEATING SYSTEM. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001000

PROJECT TITLE

A PROJECT TO DEMONSTRATE THE FEASIBILITY OF UTILIZING SOLAR ENERGY FOR HEATING A PRE-EXISTING RESIDENCE IN NORTH CENTRAL MONTANA

PROJECT NUMBER

RAE 109

INVESTIGATORS

ORVILLE N. OIEN / C-E RANCH, INC. / R.R. 3, BOX 89 / CONRAD, MT 59425

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

7,276

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - PONDERA CO., CONRAD

ABSTRACT

THIS IS A SOLAR HEATING PROJECT DESIGNED TO DEMONSTRATE THE FEASIBILITY AND PRACTICALITY OF UTILIZING SOLAR ENERGY FOR A PRE-EXISTING SINGLE-FAMILY RESIDENCE IN NORTH CENTRAL MONTANA AT APPROXIMATELY 48 DEGREES NORTH LATITUDE. AS DESIGNED, THE PROJECT HAS TAKEN INTO CONSIDERATION MONTANA'S ENVIRONMENT (INCLUDING HAIL, WINTER SNOW, AND COOLING WINDS), AESTHETIC DEMANDS, AND CONSTRUCTION LIMITATIONS INHERENT IN ADAPTING PRE-EXISTING STRUCTURES TO AN ALTERNATIVE ENERGY SYSTEM. THE SOLAR PROJECT CAN BE DIVIDED INTO THREE SEPARATE, BUT INTEGRATED SYSTEMS. THE FIRST IS THE SOLAR HEAT COLLECTION SYSTEM CONSISTING OF A WATER-ETHYLENE GLYCOL SOLUTION CIRCULATING FROM A SOLAR COLLECTOR UNIT THROUGH COPPER TUBING COILED AROUND WATER STORAGE TANKS, THROUGH AN EXPANSION TANK, AND THEN BACK TO THE SOLAR COLLECTOR. THE SECOND SYSTEM, THE HEAT STORAGE AND HOUSE HEATING SYSTEM, INCLUDES EIGHT 120-GALLON STORAGE TANKS, ON 82-GALLON ELECTRIC WATER HEATER, AND HOT WATER RADIATORS IN THE LIVING QUARTERS. THE THIRD SYSTEM TAKES ADVANTAGE OF THE HOT WATER ETHYLENE GLYCOL SOLUTION THAT HAS PASSED THROUGH THE SOLAR COLLECTOR TO PREHEAT THE WATER FOR A CONVENTIONAL HOT WATER HEATER WHICH IS ALREADY IN OPERATION IN THE HOUSE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001001

PROJECT TITLE

SOLAR WATER HEATING SYSTEM DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 110

INVESTIGATORS

WILLIAM HARBRECHT / 716 BROADWAY / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

10,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - LEWIS & CLARK CO.; HELENA

ABSTRACT

THIS PROJECT IS A SOLAR WATER HEATING SYSTEM WHICH WILL BE INTEGRATED INTO A HOME DESIGNED PURPOSELY TO CONSERVE ENERGY. THE BENEFITS DERIVED FROM THIS PROJECT SHOULD BE TWOFOLD: FIRST AND FOREMOST A COST EFFECTIVE SOLAR WATER SYSTEM WILL BE OPERATIONAL FOR PUBLIC EXAMINATION; SECONDLY, PEOPLE STUDYING THE SOLAR SYSTEM WILL HAVE AN OPPORTUNITY TO TOUR AN ARCHITECTURALLY DESIGNED ENERGY CONSERVATIVE HOME. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001002

PROJECT TITLE

DEMONSTRATION OF A SOLAR HOME HEATING SYSTEM

PROJECT NUMBER

RAE 111

INVESTIGATORS

DAVID K. ORDOFF / 1063 BRECKENRIDGE / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

5,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - LEWIS & CLARK CO.; HELENA

ABSTRACT

THIS SOLAR HOME HEATING SYSTEM IS PARTIALLY MODULAR IN DESIGN, THUS ALLOWING FOR OPTIMIZATION OF THE PERFORMANCE OF THE SYSTEM BY THE ADDITION OR DELETION OF COMPONENT MODULES. DUE TO THE SIMPLE DESIGN, UPGRADING THE SYSTEM IS EASILY DONE AS NEW DEVELOPMENTS IN THE FIELD OF SOLAR ENERGY BECOME ECONOMICALLY FEASIBLE. THE SYSTEM AS ORIGINALLY DESIGNED IS NOT OPTIMALLY EFFICIENT, BUT RATHER, COST EFFECTIVENESS AND PRACTICABILITY TAKE PRECEDENCE OVER EFFICIENCY. FURTHERMORE, THE SYSTEM HAS A BROAD RANGE OF APPLICATIONS AND CAN BE RETROFITTED TO NEARLY ANY DWELLING THAT HAS AN EXISTING CONVENTIONAL HEATING SYSTEM. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001003

PROJECT TITLE

THE APPLICATION OF SOLAR ENERGY TO HEAT A HOUSE

PROJECT NUMBER

RAE 112

INVESTIGATORS

JOHN W. MACDONALD / ROUTE 1, BOX 53 C / STEVENSVILLE, MT 59870

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

4,314

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - RAVALLI CO.; STEVENSVILLE

ABSTRACT

THIS PROJECT IS A DEMONSTRATION IN THE APPLICATION OF SOLAR ENERGY TO HEATING A HOUSE, BY RETROFITTING INTO AN EXISTING HYDRONIC SYSTEM. IN ADDITION, DURING THE SUMMER MONTHS, IT WOULD PROVIDE DOMESTIC HOT WATER. APPROXIMATELY 300 SQUARE FEET OF FLAT PLATE SOLAR COLLECTORS WILL BE INSTALLED, PRODUCING HEAT TO BE STORED IN A 1500 GALLON HEAT STORAGE TANK, PART OF THE EXISTING SYSTEM. THE SOLAR SYSTEM WOULD TRANSFER HEAT, THROUGH A HEAT EXCHANGER, TO THE HEAT STORAGE TANK. THE SOLAR HEAT ALONE SHOULD BE ADEQUATE DURING ALL BUT ABOUT 100 DAYS, WHILE DURING THAT PERIOD IT WOULD REDUCE THE AMOUNT OF FUEL NEEDED FOR THE WOOD FURNACE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001004

PROJECT TITLE

A DEMONSTRATION PROJECT FOR SOLAR HOME HEATING

PROJECT NUMBER

RAE 119

INVESTIGATORS

GEORGE MATTSON / 109 E. MAIN / BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

8,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - GALLATIN CO.; BOZEMAN

ABSTRACT

THIS PROJECT IS A COMBINATION OF ACTIVE AIR COLLECTION AND PASSIVE COLLECTION IN A SINGLE FAMILY RESIDENCE. THE HOUSE IS RECESSED APPROXIMATELY 2 FEET IN THE GROUND TO KEEP IT LOW AND GAIN SOME INSULATION FROM THE EARTH. AN INTERIOR MASONRY WALL SERVES AS PASSIVE HEAT STORAGE AND ALSO AS A HEAT SINK TO BALANCE DAYTIME WARMING AND NIGHT COOLING.

CONSTRUCTION OF THE SOLAR COLLECTION IS PLANNED AS A WOODEN, CARPENTER-BUILT UNIT. IT IS INTENDED TO USE CONVENTIONAL READILY AVAILABLE EQUIPMENT SUCH AS AN ELECTRIC FURNACE TO DRIVE THE SYSTEM.

THE GOAL IS TO BUILD AN EFFICIENT, ECONOMICAL SOLAR HOUSE THAT WILL ALSO BE INTERESTING AND ATTRACTIVE MEET THE NEEDS OF A TYPICAL FAMILY OF FOUR, AND SPEED PUBLIC ACCEPTANCE OF SOLAR HEATING. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO

THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001005

PROJECT TITLE
SUNSPOT I - DEMONSTRATION SOLAR HOME HEATING PROJECT
PROJECT NUMBER
RAE 120
INVESTIGATORS
JAMES A. ORVIS / ROUTE 1, BOX 347 / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
3,700
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - GALLATIN CO.; BOZEMAN
ABSTRACT

THIS PROJECT IS TO CONSTRUCT AND INSTALL A RETROFIT SOLAR HEATED HOT AIR SYSTEM FOR OWNERS PRIMARILY OF MOBILE HOMES. A ROCK AND GRAVEL HEAT STORAGE BIN WILL BE LOCATED UNDER THE HOUSE IN A POSITION TO FEED INTO THE EXISTING BLOWER AND DUCTED HEATING SYSTEM. THE PERFORMANCE OF THIS SYSTEM WILL BE EVALUATED BY A THREE POINT RECORDING THERMOGRAPH. THE PLANNED PROJECT WILL BE SUCH THAT IT CAN ACCOMODATE A METHANE FURNACE AND A SMALL LEAN-TO GREENHOUSE AT A FUTURE DATE. THE CONSTRUCTION OF THIS SYSTEM WILL UTILIZE NO SPECIAL MATERIALS OR TECHNOLOGY UNAVAILABLE TO THE LAYMAN. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001006

PROJECT TITLE
A DEMONSTRATION SOLAR HOME HEATING PROJECT
PROJECT NUMBER
RAE 124
INVESTIGATORS
DONALD E. PETERSON / 1 CARRIAGE WAY / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
7,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT

THIS IS A PROJECT TO INSTALL A SOLAR ENERGY SYSTEM IN A TWO-STORY SINGLE FAMILY DWELLING WITH A DAYLIGHT BASEMENT. IT HAS CONVENTIONAL FRAME CONSTRUCTION WITH TRIPLE-GLAZED WOOD WINDOWS AND INSULATION FACTORS OF R=20 IN THE WALLS AND R=40 IN THE CEILING. THE SOLAR SYSTEM IS A FORCED HOT AIR SYSTEM WITH 50 TONS OF ROCK STORAGE IN THE BASEMENT. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001007

PROJECT TITLE
A DEMONSTRATION SOLAR HOME HEATING PROJECT
PROJECT NUMBER
RAE 128
INVESTIGATORS
LAWRENCE W. TRUCHOT / ROUTE 2 SOUTH, BOX 937 / GREAT FALLS, MT 59401
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
7,500
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - CASCADE CO.; GREAT FALLS
ABSTRACT

THE PROPOSED SOLAR SYSTEM IS A WATER SYSTEM WHICH BASICALLY FOLLOWS THE PRINCIPLE OF THOMASON BUT INCORPORATES CHANGES WHICH THE APPLICANT FEELS WILL IMPROVE THE SYSTEM'S EFFICIENCY AND OPERATION WITHOUT RAISING THE COSTS EXCESSIVELY. ALSO, MONTANA POWER COMPANY HAS AGREED TO INSTALL IN THE SYSTEM RECORDING DEVICES TO MAKE RECORDINGS OF WHERE POWER IS BEING UTILIZED. THIS WILL RECORD HOW MUCH POWER IS REQUIRED FOR THE HOT WATER HEATER, THE PUMP FOR THE SOLAR HOUSE, AND THE

BACKUP HEATING SYSTEM. THEY WILL ALSO MONITOR THE INSIDE AND OUTSIDE TEMPERATURE. THIS INFORMATION WILL HELP ANALYZE HOW EFFICIENT THIS SYSTEM IS WORKING AND HOW MUCH ENERGY IT IS SAVING. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001008

PROJECT TITLE

A DEMONSTRATION SOLAR HOME HEATING PROJECT

PROJECT NUMBER

RAE 129

INVESTIGATORS

JACK KREITINGER / ROUTE 1, BOX 195 / THREE FORKS, MT 59752

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

4,315

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - GALLATIN CO.: THREE FORKS

ABSTRACT

THIS PROJECT WILL SUPPLEMENT THE EFFORTS OF A FAMILY OF FIVE TO UTILIZE ENERGY FROM WOOD AND THE SUN TO PROVIDE CLOSE TO 100% OF THE HEAT ENERGY REQUIREMENTS FOR HEATING A RESIDENCE INCLUDING 2,600 SQUARE FEET OF LIVING SPACE, 720 SQUARE FEET OF SHOP AREA AND 336 SQUARE FEET OF INDOOR GARDEN AREA. ALSO TO PROVIDE 70% OF THEIR DOMESTIC HOT WATER. AN ESTIMATED 50% OF THE EQUIPMENT AND MATERIAL HAS BEEN PUT IN PLACE BY THE OWNER-BUILDER. THIS INLCUDES FOUR WOOD BURNING STATIONS, HEATING COILS, BASEBOARD HEATERS, 2000 GALLON STORAGE TANK, HOT WATER HEATER AND GREENHOUSE. ALSO THE RESIDENCE HAS A COMPLETE ELECTRIC HEATING SYSTEM FOR BACKUP PURPOSES. THE FUNDS FROM THIS PROPOSAL WILL INSTALL THE SOLAR FURNACES. ONE WILL HEAT AIR AND USE A ROCK BATTERY FOR STORAGE. THE OTHER WILL HEAT WATER AND USE THE 2000 GALLON TANK FOR STORAGE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001009

PROJECT TITLE

SOLAR SHOWER AND DOMESTIC HOT WATER DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 141

INVESTIGATORS

GEORGE T. BARBER

RESEARCH INSTITUTION

MONTANA CONFERENCE OF THE UNITED CHURCH OF CHRIST /
ROCKY MOUNTAIN COLLEGE / KIMBALL HALL, 1511 POLY DR. /
BILLINGS, MT 59102

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

1,300

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - SWEET GRASS CO.: CAMP MEMANAGIST, 25 MILES SOUTH OF BIG TIMBER

ABSTRACT

THIS PROJECT PROPOSES TO DO TWO SEPARATE DEMONSTRATION SYSTEMS, ONE WHICH WILL AUGMENT THE COMMERCIAL ENERGY SOURCE USED AT THE CAMP, AND ONE WHICH WILL REPLACE IT ALTOGETHER. FLAT-PLATE COLLECTORS FOR WATER HEATING IN THE LODGE/DINING HALL/DORMITORY WILL RAISE THE WATER TEMPERATURE BETWEEN ITS SOURCE AND THE ELECTRIC WATER HEATER, THE OBJECT BEING TO REDUCE THE AMOUNT OF ELECTRICAL POWER CONSUMED. A SIMPLE SOLAR SHOWER WILL ALSO BE CONSTRUCTED, NOT ONLY TO REDUCE CONSUMPTION OF CONVENTIONALLY HEATED WATER, BUT TO CONVEY IN VERY CONCRETE FASHION THE LESSONS OF INDEPENDENCE (FROM CONVENTIONAL ENERGY) AND DEPENDENCE (UPON CLIMATIC, WEATHER, AND OTHER ENVIRONMENTAL CONDITIONS). (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001010

PROJECT TITLE

DETERMINATION OF THE MOST SUITABLE MATERIALS AND FLUIDS FOR A PRACTICAL DOMESTIC SOLAR HOT WATER SYSTEM

PROJECT NUMBER

RAE 142

INVESTIGATORS

I. R. SHELLEY

RESEARCH INSTITUTION

MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY / BUTTE, MT 59071

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

14,812

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - SILVER BOW CO.; BUTTE

ABSTRACT

THIS PROJECT IS INTENDED TO BE A DEVELOPMENT AND DEMONSTRATION PROJECT DESIGNED TO DETERMINE THE MOST EFFECTIVE FLUIDS AND MATERIALS FOR PRACTICAL DOMESTIC SOLAR AND HOT WATER SYSTEMS. IT IS ANTICIPATED THAT IT WILL BE POSSIBLE TO DECIDE ON THE MOST SUITABLE WORKING FLUID, METHOD OF GLAZING AND METAL FOR COLLECTING CELL CONSTRUCTION IN THE MONTANA ENVIRONMENT. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001011

PROJECT TITLE

DEMONSTRATION FOR THE MANUFACTURE OF LOW-COST SOLAR HEATING SYSTEMS FOR MOBILE HOMES

PROJECT NUMBER

RAE 144

INVESTIGATORS

KEN HOGGS

RESEARCH INSTITUTION

DISTRICT 11 HUMAN RESOURCE COUNCIL / 207 EAST MAIN / MISSOULA, MT 59801

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

26,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - MISSOULA CO.; MISSOULA

ABSTRACT

THIS PROJECT WILL INSTALL SOLAR HEATING SYSTEMS ON MOBILE HOMES WHICH UTILIZE AN EFFECTIVE PLATE COLLECTOR BANK WHICH MOUNTS IN A VERTICAL POSITION TO THE SOUTH WALL OF THE TRAILER. DISTRICT 11 WILL INSTALL 20 OF THESE UNITS AT A COST OF $600 PER UNIT ON MOBILE HOMES OF LOW INCOME FAMILIES.

UNFORTUNATELY, MOST MOBILE HOMES ARE POORLY INSULATED AND REQUIRE SUBSTANTIALLY MORE ENERGY TO HEAT PER CUBIC FOOT THAN CONVENTIONALLY CONSTRUCTED HOMES. ALTHOUGH WEATHERIZATION PROVIDES SOME ENERGY SAVINGS FOR MOBILE HOME OWNERS, THIS TYPE OF HOUSING CONTINUES TO BE THE MOST COSTLY FROM AN ENERGY STANDPOINT. BECAUSE MOBILE HOMES ARE SUBJECT TO PERIODIC RELOCATION, THE STAFF OF DISTRICT 11 HAS DESIGNED A MODULAR SOLAR HEATING SYSTEM WHICH CAN BE EASILY DISMANTLED. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001012

PROJECT TITLE

LOW INCOME SOLAR HOME HEAT DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 145

INVESTIGATORS

MAJOR CALDWELL / HORIZON LODGE / 701 SOUTH WISCONSIN / CONRAD, MT 59425

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

50,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - PONDERA CO.; CONRAD

ABSTRACT

THIS PROJECT WILL DEMONSTRATE THE APPLICATION OF SOLAR ENERGY TO DOMESTIC WATER HEATING IN AN EXISTING 84 UNIT, LOW INCOME APARTMENT DWELLING. THE PROJECT WILL CONSIST OF A RETROFIT OF THE DOMESTIC WATER SYSTEM TO DEVELOP A METHODOLOGY OF APPLYING SOLAR ENERGY TO EXISTING BUILDINGS. HORIZON HOUSE IS A FIVE-STORY BUILDING WITH ROOF STRUCTURE TO ACCOMODATE EQUIPMENT. ITS LOCATION IS SUCH THAT THE UNITS WOULD HAVE 100% SUN EXPOSURE. THE PROPOSED SYSTEM WILL SUPPLY 85% OF THE PRESENT DOMESTIC WATER FOSSIL FUEL CONSUMPTION. LOAD FACTORS FOR SOLAR WATER HEATING SYSTEMS ARE HIGH BECAUSE OF THE RELATIVELY CONSTANT DEMAND FOR HOT WATER. THUS, SOLAR WATER HEATING IS AN ATTRACTIVE USE OF SOLAR ENERGY. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001013

PROJECT TITLE

SOLAR HOT AIR COLLECTORS FOR 20 LOW INCOME HOMES

PROJECT NUMBER

RAE 146

INVESTIGATORS

DICK KING

RESEARCH INSTITUTION

DISTRICT 4 HUMAN RESOURCES COUNCIL
BOX 1509 / HAVRE, MT 59501

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

6,076

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - HILL CO.; HAVRE

ABSTRACT

THIS PROJECT WILL DEVELOP LOW-COST, SOLAR HOT AIR, FLAT PLATE, DOUBLE GLAZED COLLECTORS DESIGNED TO FIT THE PECULIARITIES OF EXISTING HOUSING. THESE COLLECTORS AN SOLAR SYSTEMS WILL BE INSTALLED ON APPROXIMATELY 20 LOW INCOME HOMES. IT IS ANTICIPATED THAT THE INSTALLATION OF THESE COLLECTORS WILL DECREASE THAT HOME'S USE OF NATURAL GAS BY AS MUCH AS 30%. SOLAR COLLECTORS OF ANY TYPE ARE NEARLY NONEXISTANT IN NORTHCENTRAL MONTANA. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001014

PROJECT TITLE

DEMONSTRATIONS OF A SOLAR HOT WATER HEATER AND A SOLAR GREENHOUSE SUITABLE FOR USE BY LOW INCOME FAMILIES

PROJECT NUMBER

RAE 147

INVESTIGATORS

FRANK GORSH

RESEARCH INSTITUTION

BUTTE-SILVER BOW ANTI-POVERTY COUNCIL, INC. / 107 E GRANITE /
BUTTE, MT 59701

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

4,148

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - SILVER BOW CO.; BUTTE

ABSTRACT

THIS PROJECT WILL CONSTRUCT A SOLAR HOT WATER HEATER DEMONSTRATION ON A LOW INCOME PERSON'S MOUSE IN THE BUTTE AREA, THE CONSTRUCTION OF A SOLAR GREENHOUSE ONTO THE BUTTE NEIGHBORHOOD CENTER, AND THE EVALUATION OF THE EFFECTIVENESS OF THESE DEMONSTRATIONS OVER A SIX MONTH PERIOD. IF THE DEMONSTRATIONS ARE SUCCESSFUL, THE COUNCIL PROPOSES TO ATTEMPT TO DEVELOP AN ACTIVE PROGRAM TO TRAIN LOW INCOME PERSONS IN THE BUILDING AND INSULATION OF THESE DEVICES AND TO INSTALL ACTUAL DEVICES ON SEVERAL HOMES IN THE BUTTE AREA. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001015
PROJECT TITLE
SOLAR HEATED GREENHOUSE FOR WINTER OPERATION IN MONTANA--DEMONSTRATION PROJECT
PROJECT NUMBER
RAE 149
INVESTIGATORS
PETER L. GOBBY / 208 S. WILLSON / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
12,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - GALLATIN CO.; BOZEMAN
ABSTRACT

THIS PROJECT IS FOR A SOLAR HEATED GREENHOUSE FOR WINTER OPERATION IN MONTANA. THIS PROJECT WILL DEMONSTRATE THAT COMMERCIAL GREENHOUSES CAN BE CONSTRUCTED WHICH WILL MAINTAIN ADEQUATE GROWING TEMPERATURES WITH NEGLIGIBLE NON-RENEWABLE ENERGY CONSUMPTION. WE WILL SIMULTANEOUSLY DETERMINE WHETHER THE INCREASED LIGHT INTENSITIES DUE TO THE REFLECTORS WILL MAKE UP FOR THE SHORT DAYLIGHT PERIODS AND ALLOW THE GROWTH OF VEGETABLES THAT WOULD BE MARGINAL WITH NORMAL WINTER LIGHT LEVELS.
ALTHOUGH THE GREENHOUSE IS DESIGNED FOR WINTER USE, SUMMER USE IS NOT UNREASONABLE AND WILL BE DEMONSTRATED ALSO. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001016
PROJECT TITLE
A PROJECT TO RETROFIT SOLAR CONCENTRATING COLLECTOR SYSTEM TO EXISTING HOT WATER HEATING RESIDENCES
PROJECT NUMBER
RAE 159
INVESTIGATORS
WILLIAM C. KILBY / 3313 5TH AVE. N. / GREAT FALLS, MT 59401
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
14,100
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - CASCADE CO., GREAT FALLS
ABSTRACT

THIS PROJECT WILL DEMONSTRATE A RETROFIT SOLAR ENERGY SYSTEM INCORPORATING CONCENTRATING COLLECTORS AS APPLIED TO AN EXISTING RESIDENCE. THE SYSTEM IS DESIGNED AND OPERATED AT APPROXIMATELY 165 DEGREES F TO 180 DEGREES F SUPPLY WATER TEMPERATURE AT DESIGN OUTDOOR TEMPERATURE OF -20 DEGREES F. THE SYSTEM MUST HAVE THE HIGH TEMPERATURE WATER TO BE ABLE TO TRANSFER ENOUGH HEAT FROM THE FINNED TUBE SURFACE TO THE HEATED SPACE. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001017
PROJECT TITLE
DEVELOPMENT OF FLOURESCENT TUBE SOLAR COLLECTOR
PROJECT NUMBER
RAE 160
INVESTIGATORS
PETER S. ANTONIOLI / BOX 791 / BUTTE, MT 59701
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
5,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - SILVER BOW CO.; BUTTE
ABSTRACT

PREVIOUS WORK HAS INDICATED THAT THE USE OF DISCARDED FLUORESCENT LIGHT TUBING CAN PRODUCE A SOLAR COLLECTOR PANEL WHICH YIELDS VERY GOOD OPERATING RESULTS. THE USE OF THE DISCARDED TUBING ALSO INDICATES THAT COSTS CAN BE REDUCED AT THE SAME TIME A PRESENTLY DISCARDED

RESOURCE IS UTILIZED.
THE PURPOSE OF THIS PROJECT IS FOUR-FOLD: 1. CARRY ON FURTHER RESEARCH AND DEVELOPMENT INTO THE USE OF DISCARDED FLUORESCENT LIGHT TUBES IN THE FABRICATION OF SOLAR COLLECTOR PANELS; 2. DESIGN AND FABRICATE EQUIPMENT FOR THE RAPID CUTTING AND CLEANING OF THE USED TUBES; 3. EVALUATE VARIOUS OTHER MANIFOLDING DEVICES FOR CONNECTION OF THE TUBES; 4. CONTINUE EVALUATION OF VARIOUS DARK FLUIDS AND THEIR HEAT ABSORBING CAPACITY AND ULTRA-VIOLET DEGRADATION. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001018

PROJECT TITLE
A DEMONSTRATION PROJECT TO DEVELOP AND TEST FIVE TRACKING PARABOLIC SOLAR COLLECTORS

PROJECT NUMBER
RAE 161

INVESTIGATORS
RONALD BREESE / BOX 221 / WHITEFISH, MT 59937

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
5,000

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - FLATHEAD CO.; WHITEFISH

ABSTRACT
THE PROJECT GOALS ARE TO BUILD, TEST AND IMPROVE A REFLECTIVE TYPE SOLAR COLLECTOR AND KEEP COSTS PER BTU COMPETITIVE WITH ORDINARY FLAT PLATE COLLECTORS. FOR HIGHER LATITUDES, SUCH AS MONTANA 48 DEGREES, THE EFFICIENCY AND OUTPUT OF CURRENT FLAT PLATE COLLECTORS IS NOT SUFFICIENT FOR NEARLY YEAR ROUND SPACE AND WATER HEATING. THE FINAL SYSTEM OF 10-15 COLLECTORS SHOULD BE SUFFICIENT TO SUPPLY SPACE HEAT AND HOT WATER FOR THE AVERAGE HOME MOST OF THE YEAR. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001019

PROJECT TITLE
DEVELOP SEMICIRCULAR HOT AIR SOLAR COLLECTORS--A RESEARCH, DEVELOPMENT AND DEMONSTRATION PROJECT

PROJECT NUMBER
RAE 163

INVESTIGATORS
LOWELL C. ANDERSON / OUR REDEEMER LUTHERAN CHURCH / 1311 UNIVERSITY / HELENA, MT 59601

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
4,000

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - LEWIS & CLARK CO.; HELENA

ABSTRACT
THE PROJECT WILL RESEARCH, DEVELOP AND DEMONSTRATE A CONCENTRATING HOT-AIR SOLAR COLLECTOR SYSTEM. THE CONCENTRATING MECHANISM WILL BE A PARABOLIC OR CIRCULAR REFLECTIVE SURFACE WHICH WILL REFLECT THE SUN RAYS ONTO THE HEAT ABSORBING SURFACE.
IT IS ANTICIPATED THAT THE USE OF AIR INSTEAD OF WATER AS A TRANSFER MEDIUM WILL: 1. ELIMINATE THE POSSIBILITIES OF CLOGGING, FREEZING, AND CORROSION; 2. ELIMINATE THE NEED TO USE MORE EXPENSIVE MATERIALS ASSOCIATED WITH A WATER SYSTEM, E.G., WATER STORAGE TANK, ANTIFREEZE; 3. AND DECREASE THE AMOUNT OF MAINTENANCE NORMALLY REQUIRED OF A WATER SYSTEM. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001020

PROJECT TITLE
SOLAR POWERED RADIO REPEATER SYSTEM

PROJECT NUMBER
RAE 168

INVESTIGATORS
LEE BARRETT

RESEARCH INSTITUTION
MONTANA STATE UNIV., ELECTRONICS RESEARCH LAB. /
BOZEMAN, MT 59715

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
5,314

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - GALLATIN CO.: BOZEMAN

ABSTRACT
THE PROJECT IS A REPEATER COMMUNICATION TYPE SYSTEM WHICH WILL BE ONE OF THE FIRST SOLAR PHOTOVOLTAIC POWERED AMATEUR RADIO REPEATERS IN THE COUNTRY. CIRCUITS FOR DATA COLLECTION BY REMOTE CONTROL, THE TOTAL POWER SYSTEM OF BATTERIES AND THE SOLAR PANELS, REPEATER INSTALLATION AND SITE DEVELOPMENT FIT UNDER THE CATEGORY OF DEVELOPMENT. THE REPEATER WILL BE AN 'OPEN' REPEATER. ANY AMATEUR OPERATOR HAVING THE PROPER CHANNELS WILL BE ABLE TO USE THE REPEATER. DATA SENSORS WILL SEND BACK PERIODIC DATA ON THE SYSTEM TO MONITOR SYSTEM FUNCTIONS. SINCE THE REPEATER IS INTENDED TO LAST INDEFINITELY, MUCH DATA ON MOUNTAIN TOP SOLAR AND WEATHER CONDITIONS MAY BE TAKEN FOR FUTURE REFERENCE IN INSTALLATIONS OF THIS TYPE BY COMMERCIAL OR GOVERNMENTAL AGENCIES. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001021

PROJECT TITLE
A STUDY OF THE RADIANT PROPERTIES OF NATURAL REFLECTORS TO DETERMINE THE FEASIBILITY OF THE USE OF VERTICAL SOLAR COLLECTORS IN MONTANA

PROJECT NUMBER
RAE 176

INVESTIGATORS
JOHN E. DRUMHELLER

RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF PHYSICS / BOZEMAN, MT 59715

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
12,990

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - GALLATIN CO.: BOZEMAN

ABSTRACT
THIS PROJECT IS A STUDY OF THE RADIANT PROPERTIES OF NATURAL REFLECTORS TO DETERMINE THE FEASIBILITY OF THE USE OF VERTICAL SOLAR COLLECTORS IN MONTANA. THIS PROJECT WOULD HAVE SIGNIFICANT IMPACT ON THE POSSIBILITIES OF RETROFITTING OLDER HOMES WHICH ARE NOT STRUCTURALLY SOUND FOR ROOF TYPE COLLECTORS. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001022

PROJECT TITLE
52 DEGREES F ARTESIAN-HEAT PUMP HEATED HOME AND GREENHOUSE DEMONSTRATION PROJECT

PROJECT NUMBER
RAE 505

INVESTIGATORS
DAVE HARRIMAN / POST CREEK / ST. IGNATIUS, MT 59865

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
4,000

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - LAKE CO.: ST. IGNATIUS

ABSTRACT
THIS PROJECT WILL: 1. INSTALL A HEAT PUMP SYSTEM USING ARTESIAN WATER AS THE HEAT SOURCE; 2. ERECT A YEAR-ROUND GREENHOUSE USING THE ARTESIAN WATER IN CONJUNCTION WITH SOLAR ENERGY. WITH THE USE OF THE ARTESIAN WELL WATER AS THE SOURCE OF HEAT AND AIR AS THE HEAT TRANSFER MEDIUM, THIS HEATING-COOLING SYSTEM WILL RUN YEAR-ROUND. THE LARGE QUANTITY OF WATER AVAILABLE FROM THE WELL AND ITS DISPOSAL AFTER PASSAGE THROUGH THE HEAT PUMP SYSTEM TO EXISTING FISH PONDS MAKES THIS PROJECT ECONOMICALLY AND PHYSICALLY PRACTICAL. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 56).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001023

PROJECT TITLE

SOLAR HEATING DEMONSTRATION PROJECT--BILLINGS SHIPPING CORPORATION

INVESTIGATORS

ED BARRETT

RESEARCH INSTITUTION

BILLINGS SHIPPING CORPORATION / BOX 30216 / BILLINGS, MT
SPILDIE CONSTRUCTION / 2325 9TH AVE. N / BILLINGS, MT
C.T.A. ARCHITECTS/ENGINEERS / 1500 POLY DR. / BILLINGS, MT

PRIMARY SPONSOR

U.S. ERDA, DIV. OF SOLAR ENERGY

SECONDARY SPONSORS

PRIVATE FUNDING SOURCES

PRIMARY FUNDING AMOUNT

59,900

SECONDARY FUNDING AMOUNTS

15,000

TIME FRAME

FEB. 1977 TO NOV. 1977

LOCATION

MT - YELLOWSTONE CO.; BILLINGS

ABSTRACT

THE BILLINGS SHIPPING CORPORATION SOLAR HEATING PROJECT IS ONE OF 80 SUCH PROJECTS FUNDED BY THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION TO HELP DEMONSTRATE HOW SOLAR ENERGY CAN HEAT AND COOL COMMERCIAL BUILDINGS. THIS SOLAR ENERGY SYSTEM WILL BE USED ON A NEW OFFICE BUILDING WHICH WILL BE PART OF A FREIGHT DISTRIBUTION FACILITY. THE TOTAL PROJECT INVOLVES 46,976 SQUARE FEET OF NEW CONSTRUCTION OF WHICH 4,900 SQUARE FEET IS THE OFFICE PORTION. WATER TO WATER FLAT PLATE SOLAR COLLECTORS WILL BE USED TO PROVIDE SPACE HEATING FOR AN OFFICE BUILDING. THE COLLECTORS WILL FURNISH HEATED WATER TO AN AIR HANDLING UNIT IF THE OCCUPIED SPACE IS REQUIRING HEATING OR TO A WATER STORAGE TANK IF THE SPACE TEMPERATURE IS SATISFIED. AN OUTDOOR HEAT REJECTION UNIT WILL BE USED TO PREVENT THE WATER-ANTI-FREEZE SOLUTION CIRCULATED THRU THE COLLECTORS FROM EXCEEDING 200 DEGREES F. HEAT FROM THE STORAGE TANK WILL BE USED WHEN THE COLLECTORS ARE NOT OPERATING. (MEO)

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00001024

PROJECT TITLE

WESTERN REGIONAL SOLAR PLAN

RESEARCH INSTITUTION

SOLAR PLANNING OFFICE-WEST / SUITE 2500, 3333 QUEBEC ST.
DENVER, CO 80210

PRIMARY SPONSOR

U.S. DEPT. OF ENERGY, DIV. OF SOLAR ENERGY (ERDA GRANT)
20 MASSACHUSETTS AVE. N.W. / WASHINGTON, D.C. 20545

PRIMARY FUNDING AMOUNT

697,000

TIME FRAME

JULY 1977 TO MARCH 1978

LOCATION

WY WA OR CA NV AZ CO NM UT AK HI MT ID - SOLAR PLANNING OFFICE-WEST IS LOCATED IN DENVER, CO (THIS IS THE FOCAL POINT FOR THE PROJECT.)

ABSTRACT

THE BASIC OBJECTIVE OF THE WESTERN REGIONAL PLANNING EFFORT HAS BEEN TO DEFINE PROGRAMS FOR THE STIMULATION OF BROADER AND EARLIER USE OF SOLAR ENERGY. EMPHASIS IS ON THE NEEDS OF END-USE CONSUMERS OF SOLAR ENERGY. THE APPROACH HAS BEEN TO DISTRIBUTE THE WORK LOAD TO THE STATES. THE SOLAR PLANNING OFFICE-WEST (SPOW) HAS ISSUED GRANTS TO THE INDIVIDUAL STATES TO: 1. IDENTIFY THE SOLAR ENERGY RESOURCES, CAPABILITIES AND NEEDS AND GIVE THE STATUS OF SOLAR ENERGY ACTIVITIES WITHIN THE STATE; 2. DETERMINE AN INITIAL SET OF STATE PRIORITIES, TOGETHER WITH SUPPORTING RATIONALE, FOR ACTIVITIES TO ENCOURAGE SOLAR ENERGY APPLICATIONS; 3. IDENTIFY AND DISCUSS THE EXISTING AND ANTICIPATED DETERRENTS TO AND DESIRABLE INCENTIVES FOR EXPANDING THE USE OF SOLAR ENERGY; AND 4. RECOMMEND PROGRAMS, TOGETHER WITH RATIONALES, COST, SCHEDULES, AND EXPECTED RESULTS, TO REDUCE OR ELIMINATE DETERRENTS AND TO IMPLEMENT INCENTIVES. THE SOLAR PLANNING OFFICE-WEST WILL THEN SYNTHESIZE THE INFORMATION PROVIDED BY THE STATES AND THEREBY DEVELOP A PLAN WITH PROJECTS AND PROPOSALS DESIGNED TO ACCELERATE THE DEVELOPMENT OF SOLAR ENERGY IN THE WEST.

REPORTS AND PUBLICATIONS

A 2 VOLUME REPORT WILL BE AVAILABLE MARCH 31, 1978 FROM EACH STATE ENERGY OFFICE, SPOW OFFICE, AND DOE.
VOLUME I: WESTERN REGIONAL SOLAR PLAN
VOLUME II: 13 INDIVIDUAL STATE REPORTS

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00001025

PROJECT TITLE
MONTANA SOLAR PLANNING EFFORT

INVESTIGATORS
JOSEPH C. HORVATH / JAN KONIGSBERG / J. L. COOK / RANDALL F. HOY

RESEARCH INSTITUTION
MONTANA ENERGY OFFICE / CAPITOL STATION / HELENA, MT 59601

COORDINATOR
SOLAR PLANNING OFFICE-WEST

PRIMARY SPONSOR
U.S. DEPT. OF ENERGY, DIV. OF SOLAR ENERGY

PRIMARY FUNDING AMOUNT
17,700

TIME FRAME
SEPT. 1977 TO MAR. 1978

LOCATION
MT

ABSTRACT
GOAL: TO DETERMINE THE MANNER IN WHICH MONTANA AND THE OTHER STATES OF THE WESTERN REGION CAN MOST EFFECTIVELY FOSTER IMMEDIATE AND RAPID DEVELOPMENT OF RENEWABLE ENERGIES (WIND, SOLAR, WATER, ETC.).
OBJECTIVE: IDENTIFY AND INTEGRATE VARIOUS ENTITIES THAT ARE OR SHOULD BE INVOLVED WITH SOLAR ENERGY DEVELOPMENT INTO A VIABLE SOLAR INFRASTRUCTURE WITHIN MONTANA THAT CAN IMPLEMENT PROGRAMS OR ELEMENTS OF PROGRAMS, FORMULATED AND RECOMMENDED BY THE MONTANA SOLAR PLANNING EFFORT, WHICH IN TURN WILL REALIZE CERTAIN LEVELS OF SOLAR DEVELOPMENT IN MONTANA AND THE STATES OF THE WESTERN REGION BY THE YEAR 1983.
WORK PLAN: A. SOLAR RESOURCE INVENTORIES: INVENTORIES OF SOLAR RESOURCES WILL BE COLLECTED FOR MONTANA. B. PROBLEM IDENTIFICATION: PROBLEMS THAT WOULD IMPEDE DEVELOPMENT OF A VIABLE SOLAR INDUSTRY AND MARKET IN MONTANA WILL BE IDENTIFIED BY QUESTIONNAIRES, MINI-ENERGY HEARINGS, SPECIALIZED WORKSHOPS, AND A THOROUGH LITERATURE SEARCH. C. PROBLEM ANALYSIS: ALL INFORMATION FROM A AND B ABOVE WILL BE ANALYZED AND FORMULATED INTO PROBLEM STATEMENTS. D. PROGRAM RECOMMENDATION: PROGRAMS RECOMMENDED TO HASTEN SOLAR DEVELOPMENT WITHIN THE WESTERN REGION, SUBREGIONAL AREAS AND MONTANA WILL INCLUDE AN IMPLEMENTATION SCHEME FOR THE ENTIRE WESTERN REGION THAT CAN NOT ONLY CARRY OUT PROGRAMS RECOMMENDED, BUT WILL ALLOW ACCESS TO THE SOLAR INFRASTRUCTURES FOUND IN EACH STATE. E. REPORTING: THE RESULTS OF THE SOLAR PLANNING EFFORT WILL BE PUBLISHED IN A REPORT TO THE SOLAR PLANNING OFFICE-WEST. A SOLAR DIRECTORY WILL ALSO BE PUBLISHED. (MED)

STUDY AFFILIATION
THIS IS A SUBPROJECT OF 'WESTERN REGIONAL SOLAR PLAN.' SOLAR PLANNING OFFICE-WEST.

REPORTS AND PUBLICATIONS
MONTANA SOLAR PLAN (DRAFT DUE DECEMBER 1, 1977, FINAL DUE MARCH 1, 1978). A SOLAR DIRECTORY WILL ALSO BE PUBLISHED.

00001026
PROJECT TITLE
WINDMILL SHELTERBELTS
PROJECT NUMBER
RAE 20
INVESTIGATORS
V. HUGO SCHMIDT
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF PHYSICS / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
7,346
LOCATION
MT
ABSTRACT

THIS PROJECT IS CONCERNED WITH ELECTRICAL GENERATORS AND ALTERNATORS USED WITH SMALL WIND SYSTEMS, AND CONVERSION OF THEIR OUTPUT TO 60 HZ AC WHICH CAN BE FED INTO EXISTING POWER GRIDS. THE MAJOR TASK OF THIS PROJECT WILL BE CONTINUED DEVELOPMENT AND TESTING OF THE SYNCHRONOUS INVERTER ON WHICH WE HAVE BEGUN WORK. THIS DEVICE IS BASED ON AN SCR (SILICON CONTROLLED RECTIFIER) BRIDGE. AN ELECTRONIC CONTROL OF THE SCR FIRING ANGLE WILL BE DEVISED WHICH WILL ADJUST THE LOAD PRESENTED BY THE INVERTER TO THE GENERATOR, IN ORDER TO CONTROL THE WIND ROTOR RPM SO AS TO OBTAIN NEARLY MAXIMUM POSSIBLE POWER OUTPUT AT ALL WIND SPEEDS. AN ESTIMATE WILL BE MADE OF THE COST OF THE INVERTER IN QUANTITY PRODUCTION. A MOSTLY COMPLETED WIND GENERATION SYSTEM WILL BE FINISHED, AND WILL BE USED IN FIELD TESTS OF THE INVERTER. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001027
PROJECT TITLE
WIND ENERGY SYSTEM FOR AN EXISTING RESIDENTIAL HOUSE--PHASE I
PROJECT NUMBER
RAE 35
RESEARCH INSTITUTION
DRAPES ENGINEERING FIRM / 20 EKLUND BUILDING /
GREAT FALLS, MT 59401
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
5,093
TIME FRAME
DEC. 1976 TO DEC. 1977
LOCATION
MT - CASCADE CO.
ABSTRACT

PHASE I OF THE WIND ENERGY DEMONSTRATION PROJECT WILL CONSIST OF A METEOROLOGICAL CONFIRMATION OF THE MAGNITUDE OF THE WIND RESOURCE AT THE PROPOSED SITE. (PHASE II WHICH MAY BE FUNDED AT A LATER DATE, WOULD CONSIST OF THE ACTUAL PROCUREMENT OF EQUIPMENT, INSTALLATION AND MONITORING OF PERFORMANCE.) PHASE I WILL CONSIST OF THE FOLLOWING STEPS: (1) THE SELECTED HILLTOP WILL BE INSTRUMENTED IN ORDER TO POSITIVELY ESTABLISH THE MAGNITUDE OF THE WIND ENERGY RESOURCE; (2) FOLLOWING A MINIMUM MEASURING PERIOD OF ONE MONTH, A DECISION REGARDING THE FUTURE COURSE OF THE PROJECT WILL BE MADE: (A) EITHER END PROJECT BECAUSE OF INSUFFICIENT WIND ENERGY; (B) CONTINUE THE METEOROLOGICAL MEASUREMENTS IF 1 MONTH MEASURING PERIOD IS CONSIDERED INSUFFICIENT TO ESTABLISH A RELIABLE CORRELATION WITH WEATHER BUREAU DATA; (C) CONTINUE PROJECT IF RECORDED DATA AND CORRELATION WITH LONG-TERM DATA INDICATE SITE IS SUFFICIENTLY WINDY; (3) CARRY OUT AN ANALYTICAL ESTIMATION OF THE WIND PLANT ENERGY PRODUCTION. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001028
PROJECT TITLE
PADDLEWHEEL-TYPE WINDMILL
PROJECT NUMBER
RAE 39
INVESTIGATORS
LEROY GUSTAFSON / BOX 1168 / CUT BANK, MT 59427
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

4,800

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - GLACIER CO.: CUT BANK

ABSTRACT

THIS PROJECT WILL DESIGN A PADDLEWHEEL WITH A DEFLECTOR ON THE LOWER HALF TO PREVENT THE WIND FROM HITTING THE BALLON--WHICH IS MOVING INTO THE WIND. WIND TUNNEL EXPERIMENTS WILL BE CONDUCTED TO DETERMINE THE MOST ECONOMICAL POSITION AND SIZE OF THE DEFLECTOR, NUMBER OF BLADES, AND SHAPE OF THE BLADES.

THE MODEL IS SCALED UP AND 1' X 20' WINDMILL WILL BE CONSTRUCTED. THE PURPOSE OF THIS EXPERIMENT IS TO DESIGN A WINDMILL WITH A SLOW TIP SPEED, THAT DOESN'T NEED TO BE FEATHERED, THAT CAN BE MADE FAIRLY LARGE WITHOUT SPECIAL EQUIPMENT, AND CAN BE MADE OF JUNK MATERIAL, AND BE ECONOMICAL.

UNLIKE THE FAN BLADE WIND GENERATOR, THE PADDLEWHEEL TURNS WITH THE WIND. FOR THIS REASON IT CAN'T TURN MUCH FASTER THAN THE SPEED OF THE WIND EVEN WHEN FREE WHEELING. OTHER WINDMILLS TURN AT RIGHT ANGLES TO THE WIND. WHEN THEY HAVE A SMALL LOAD THEY CONTINUE TO ACCELERATE TILL SELF-DESTRUCTION--THEREFORE, THEY NEED TO BE FEATHERED. A SLOWER BLADE ALLOWS THE USE OF HEAVIER MATERIALS, SUCH AS STEEL. THIS DESIGN SHOULD BE ESPECIALLY USEFUL TO MONTANA FARMERS AND RANCHERS. IT CAN BE BUILT WITH NO OUTSIDE HELP AND MOST OF THE MATERIALS USED CAN BE FOUND AT LOW COST. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001029

PROJECT TITLE

A DOMESTIC SIZED WIND-ELECTRIC SYSTEM FOR RURAL MONTANANS

PROJECT NUMBER

RAE 52

INVESTIGATORS

BILL DELP

RESEARCH INSTITUTION

INDEPENDENT POWER DEVELOPERS, INC.
BOX 1467 / NOXON, MT 59853

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

64,256

TIME FRAME

DEC. 1976 TO DEC. 1977

LOCATION

MT - CHOUTEAU CO.: HIGHWOOD

ABSTRACT

THE OBJECTIVE OF THIS PROJECT IS TO CONSTRUCT A WIND-ELECTRIC GENERATION SYSTEM ON A FARM NEAR HIGHWOOD, MONTANA WHICH WILL BE CAPABLE OF MEETING THE POWER REQUIREMENTS OF AN ALL ELECTRIC HOUSEHOLD ON THAT SITE DURING A MINIMUM OF 90% OF ANY GIVEN TEST YEAR. TO ACCOMPLISH THIS OBJECTIVE, A WIND-ELECTRIC GENERATION SYSTEM HAVING A MAXIMUM OUTPUT OF 20KW IN 25 MPH WINDS WITH A START-UP WIND SPEED REQUIREMENT OF 6 MPH IS TO BE CONSTRUCTED. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001030

PROJECT TITLE

INTEGRATED WIND POWER SYSTEMS

PROJECT NUMBER

RAE 201

INVESTIGATORS

V. HUGO SCHMIDT / RICHARD ROSA

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF PHYSICS / BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

19,640

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - GALLATIN CO.: BOZEMAN

ABSTRACT

THIS PROJECT WILL CONTINUE THE DEVELOPMENT OF WIND GENERATION SYSTEMS WHICH WILL BE INTEGRATED INTO THE EXISTING ELECTRICAL POWER GRID. DEVELOPMENT OF SYNCHRONOUS INVERTERS, WHICH CHANGE DIRECT CURRENT FROM WIND GENERATORS INTO ALTERNATING CURRENT SYNCHRONIZED WITH THE LINE FREQUENCY, WILL BE CONTINUED. TWO TYPES OF

SYNCHRONOUS INVERTER SYSTEMS WILL BE STUDIED, BASED ON SILICON-CONTROLLED RECTIFIERS (SCRS) AND TRANSISTORS RESPECTIVELY. THE GOALS WILL BE TO IMPROVE EFFICIENCY AND CURRENT WAVEFORM, TO DESIGN THE INVERTERS TO PRESENT THE PROPER LOAD TO THE GENERATOR FOR VARIOUS WIND SPEEDS, AND TO REDUCE COST. THREE TYPES OF DUCTED WINDMILL SYSTEMS, CONSISTING OF FIXED BARRIERS ARRANGED TO INCREASE AIR VELOCITY TO THE ROTORS, WILL BE DEVELOPED AND TESTED. THESE SYSTEMS WILL BE DESIGNED TO BE APPLICABLE TO WINDMILL SHELTERBELTS AS WELL AS TO INDIVIDUAL USE. THE SYNCHRONOUS INVERTERS WOULD ALSO BE APPLICABLE TO SOLAR OR SMALL HYDROELECTRIC DIRECT CURRENT GENERATING SYSTEMS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001031

PROJECT TITLE

TWO KW DUNLITE HOME WIND GENERATOR SYSTEM DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 204

RESEARCH INSTITUTION

DRAPES ENGINEERING / 202 EKLUND BUILDING / GREAT FALLS, MT 59402

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

19,375

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - CASCADE CO.: GREAT FALLS

ABSTRACT

THIS PROJECT WILL DEMONSTRATE THE OPERATION OF A WIND-POWERED ELECTRIC GENERATING SYSTEM WHICH WORKS IN CONJUNCTION WITH THE EXISTING POWER GRID. THIS SYSTEM CONFIGURATION DISPLAYS SEVERAL MARKED ADVANTAGES OVER TRADITIONAL ELECTRIC ENERGY STORAGE IN BATTERIES. SINCE THE NETWORK PROVIDES BACK-UP ENERGY, NO STORAGE IS REQUIRED. THE HEAVY INVESTMENT OF MONEY, MATERIALS AND ENERGY IN BATTERIES IS NOT NECESSARY AND THE NET ENERGY GAIN OF THE SYSTEM IS IMPROVED. NO CHANGE IN HOUSE WIRING IS REQUIRED. THIS SYSTEM MAKES USE OF THE POWER DISTRIBUTION NETWORK THE FEDERAL GOVERNMENT HAS ALREADY SUBSIDIZED. ALL OF THE WIND-GENERATED ENERGY IS USED EITHER IN THE HOUSE OR SOMEWHERE ELSE IN THE NETWORK. THUS, ANOTHER ELECTRIC PRODUCING FUEL, SUCH AS COAL OR WATER, IS REPLACED BY RENEWABLE WIND ENERGY. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001032

PROJECT TITLE

WIND GENERATED ELECTRIC HOT WATER PRE-HEATER DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 205

INVESTIGATORS

WAYNE LERSBACK

RESEARCH INSTITUTION

MONTANA SCHOOL DISTRICT #3 AND 3 B / CASCADE, MT 59421

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

10,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - CASCADE CO.: CASCADE

ABSTRACT

THE PROPOSED SYSTEM WOULD CONSIST OF THREE WIND POWERED ELECTRIC GENERATORS PROVIDING APPROXIMATELY 80 PERCENT OF THE ANNUAL DOMESTIC WATER HEATING DEMAND FOR THE CASCADE SCHOOL BUILDING. WATER HEATING WOULD BE ACCOMPLISHED BY USE OF DC POWERED ELECTRIC EMERSION HEATERS, ELIMINATING THE NEED FOR CONVERSION TO AC. STORAGE AND UTILIZATION OF A VARIABLE WIND ENERGY SYSTEM IS MADE POSSIBLE BY ALLOWING THE EXISTING HOT WATER TANK TO FUNCTION AS A HEAT STORAGE DEVICE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001033

PROJECT TITLE

WIND ELECTRIC GENERATOR RESEARCH AND DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 206

INVESTIGATORS

ROBERT LEO

RESEARCH INSTITUTION

MONTANA STATE UNIV., ELECTRONICS RESEARCH LABORATORIES
BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

8,035

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - GALLATIN CO.: BOZEMAN

ABSTRACT

THIS PROJECT WILL DEVELOP A WIND POWERED ELECTRIC GENERATING SYSTEM, ESPECIALLY DESIGNED AND ADAPTED FOR USE IN MONTANA'S SEVERE WINTER ENVIRONMENT AND FOR MONTANA APPLICATIONS. FROM THE STANDPOINT OF BASIC RESEARCH, SEVERAL RESULTS RELATIVE TO WIND ELECTRIC SYSTEMS WOULD BE PRODUCED: 1. SUPPORT (OR NOT) OF THE CONCEPT OF THE USE OF UNFEATHERED PROPELLER SYSTEMS; 2. SUPPORT (OR NOT) OF THE CONCEPT OF THE USE OF BRAKED SYSTEMS; 3. DEMONSTRATION OF A SIMPLE MODERN ELECTRONIC CONTROL SYSTEM; 4. THAT A RELIABLE LOW COST WIND ELECTRIC SYSTEM IS FEASIBLE FOR MONTANA MOUNTAIN TOP APPLICATIONS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001034

PROJECT TITLE

WINCO 200 WATT HOME WIND GENERATOR DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 209

INVESTIGATORS

JOHN F. KELLY / STAR ROUTE 1 / LIBBY, MT 59923

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

3,500

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - LINCOLN CO.: LIBBY

ABSTRACT

THIS PROJECT IS TO INSTALL A 200-WATT GENERATOR, WHICH COMES WITH A 50-FOOT TOWER, A 30-FOOT TOWER WHICH SUPPORTS THE GENERATOR, AND A SMALLER TOWER, AND TWO 200 AMP-HOUR DEEP CYCLE BATTERIES. THE WIND GENERATOR WOULD BE INSTALLED APPROXIMATELY 50 FEET FROM THE HOUSE AND WOULD CONNECT TO ALREADY EXISTING ELECTRICAL WIRING IN THE HOUSE. ALSO ON THE TOWER WOULD BE INSTALLED A RECORDING AND A MONITOR AND DIRECTION INDICATOR SO THAT WIND SPEED AND DIRECTION WOULD BE RECORDED. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001035

PROJECT TITLE

WIND POWERED WATER PUMP AND IRRIGATION SYSTEM DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 210

INVESTIGATORS

JACK WHITING / JANE WHITING / BOX 295 / DAYTON, MT 59914

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

2,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - LAKE CO.: DAYTON

ABSTRACT

THIS PROJECT IS A WINDMILL WHICH WILL PUMP WATER INTO A 4,095 GALLON TANK. UPON NEED FOR IRRIGATION WATER, THE GATE VALVE WOULD BE OPENED AT THE TANK SENDING

THE WATER THROUGH THE IRRIGATION PIPE AND SPRINKLER SYSTEM. THE TANK WILL BE 80 FEET ABOVE THE FIELDS PROVIDING THE GRAVITY FLOW. SPRINKLER HEADS WILL BE USED EFFECTIVELY AT THE 35 POUNDS OF PRESSURE THAT WILL BE DEVELOPED AT 80 FEET OF FALL. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SP 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001036

PROJECT TITLE

DEMONSTRATION OF SMALL WIND-GENERATED ELECTRICAL ENERGY SYSTEMS

PROJECT NUMBER

10775170

INVESTIGATORS

DON SMITH

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF MECHANICAL ENG.
LARAMIE, WY 82071

PRIMARY SPONSOR

OLD WEST REGIONAL COMMISSION / BILLINGS, MT 59101

SECONDARY SPONSORS

GRUMMAN AIRCRAFT CORPORATION

PRIMARY FUNDING AMOUNT

224,483

SECONDARY FUNDING AMOUNTS

10,000

TIME FRAME

JUNE 1977 TO JUNE 1979

LOCATION

WY - ALBANY CO.; LARAMIE

ABSTRACT

THE LARGEST LAND AREA IN THE U.S. WITH HIGH WIND ENERGY (ENERGY LEVELS IN EXCESS OF 150 WATTS PER SQUARE METER) IS IN THE GREAT PLAINS, AND THE STATES WHICH COMPRISE THE OLD WEST REGIONAL COMMISSION DOMINATE THIS AREA. AREAS OF WIND POWER LEVELS IN EXCESS OF 200 WATTS PER SQUARE METER EXIST OVER LARGE PORTIONS OF THE OWRC. THE OBJECTIVES OF THE STUDY ARE TO: 1. DETERMINE THE FEASIBILITY OF USING WIND POWER FOR ELECTRICAL POWER GENERATION IN AGRICULTURAL AND RURAL AREAS WHERE THE WIND RESOURCE IS SUBSTANTIAL; 2. DEVELOP CAPABILITY TO TAKE WIND DATA AND POWER REQUIREMENTS FOR ANY OTHER AGRICULTURAL LOCATON, COMBINE THESE WITH WIND TURBINE CHARACTERISTICS AND DEVELOP AN ESTIMATE OF THE IMPACT OF THE WIND ENERGY CONVERSION SYSTEM (WECS) ON THE ENERGY NEEDS FOR THAT PARTICULAR APPLICATION; 3. TO DETERMINE ECONOMIC CONDITIONS THAT MUST EXIST FOR WIND GENERATED ELECTRICITY TO BE ECONOMICAL FOR INDIVIDUAL RANCHERS AND FARMERS.
SPECIFIC TASKS: THE FIRST YEAR SHALL BE USED FOR PROCUREMENT, INSTALLATION, AND SHAKEDOWN TESTS OF THE SELECTED WIND TURBINE SYSTEM. THE SECOND YEAR SHALL BE FOR EXTENDED PERFORMANCE TESTS OF THE WIND GENERATING SYSTEM AND IDENTIFICATION OF AREAS FOR POSSIBLE IMPROVEMENTS IN THE INITIAL CONFIGURATION. THE SECOND YEAR SHALL ALSO BE USED TO EVALUATE MODIFICATIONS TO THE ORIGINAL SYSTEM BASED ON WEAKNESSES IDENTIFIED DURING THE INITIAL PERFORMANCE EVALUATIONS AND THE TESTING OF THESE MODIFICATIONS.

00001037

PROJECT TITLE

AN INVESTIGATION OF THE FEASIBILITY OF UTILIZING GEOTHERMAL ENERGY IN A RESIDENTIAL SUBDIVISION

PROJECT NUMBER

RAE S9

INVESTIGATORS

WILLIAM M. SPILKER / BOX 244 / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

15,000

LOCATION

MT - LEWIS & CLARK CO.; HELENA

ABSTRACT

THIS PROJECT WILL INVESTIGATE THE FEASIBILITY OF UTILIZING GEOTHEMAL ENERGY IN A RESIDENTIAL SUBDIVISION TO PROVIDE SPACE HEAT, ALONG WITH OTHER POSSIBLE ENERGY REQUIREMENTS. THE GRANT FUNDS WILL BE TO ESTABLISH A DEMONSTRATION MODEL TO TEST THE PRACTICABILITY OF WATER IS THE NATURALLY OCCURRING BROADWATER HOT SPRINGS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001038

PROJECT TITLE

A GEOTHERMAL HEATED BANK

PROJECT NUMBER

RAE S03

INVESTIGATORS

MICHAEL E. GROVE / FIRST NATIONAL BANK /
WHITE SULPHUR SPRINGS, MT 59645

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

28,500

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - MEAGHER CO.; WHITE SULPHUR SPRINGS

ABSTRACT

THIS PROJECT WILL UTILIZE A GEOTHERMAL HEAT SOURCE TO PROVIDE HEAT FOR A NEW BANK BUILDING BEING BUILT IN WHITE SULPHUR SPRINGS, MT. THE SYSTEM WOULD UTILIZE HEAT EXCHANGERS TO TRANSFER HEAT FROM THE GEOTHERMAL WATER TO THE AIR HEATING SYSTEM OF THE BUILDING. THE GEOTHERMAL HEATING SYSTEM WILL CONSIST OF A 400 FOOT DEEP WELL, PUMP(S), CONNECTING PIPING, A FINNED TUBE COIL AND A REINJECTION DRY WELL OF APPROXIMATELY 100 FEET DEEP. ACCOMPLISHMENT OF THIS PROJECT WILL HELP PROVIDE LOCAL EXPERIENCE EXPERTISE FOR THOSE INVOLVED AND PROVIDE INFORMATION FOR MONTANA'S GEOLOGICAL AND GEOTHERMAL DATA BASE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001039

PROJECT TITLE

A CONCEPTUAL DESIGN FOR UTILIZING GEOTHERMAL ENERGY AT WARM SPRINGS STATE HOSPITAL

PROJECT NUMBER

RAE S04

INVESTIGATORS

KAREN BARCLAY

RESEARCH INSTITUTION

MONTANA ENERGY AND MHD RESEARCH & DEVELOPMENT INST.
BOX 3809 / BUTTE, MT 59701

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

9,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - SILVER BOW CO.; BUTTE / DEER LODGE CO.; WARM SPRINGS

ABSTRACT

THIS IS A CONCEPTUAL DESIGN STUDY WHICH WILL GATHER DATA ON THE ENERGY DEMAND OF THE WARM SPRINGS STATE HOSPITAL AND EXPLORE THE FEASIBILITY OF UTILIZING THE HOT SPRINGS IN THE AREA TO SATISFY THE DEMAND. AS A SECONDARY OBJECTIVE, THE INSTITUTE WILL SEEK ADDITIONAL FUNDING FOR THE DEMONSTRATION OF GEOTHERMAL SPACE HEATING AT

WARM SPRINGS BASED UPON PROJECTED RESULTS OF THE RESOURCE EXPLORATION. IT IS ANTICIPATED THAT THE REPORT PREPARED UNDER THIS CONTRACT WILL ENABLE THE STATE TO IMPLEMENT A BROAD-BASED ENERGY CONSERVATION PROGRAM AT WARM SPRINGS STATE HOSPITAL. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001040

PROJECT TITLE

REGIONAL GEOTHERMAL HYDROLOGY OF SOUTHWESTERN MONTANA

PROJECT NUMBER

MT 75-052

INVESTIGATORS

ROBERT B. LEONARD

RESEARCH INSTITUTION

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV. / BOX 1696
HELENA, MT 59601

PRIMARY SPONSOR

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.

PRIMARY FUNDING AMOUNT

112,000

TIME FRAME

JUNE 1975 TO JUNE 1978

LOCATION

MT - SOUTHWESTERN QUARTER WITH EMPHASIS ON ALHAMBRA-MARYSVILLE AREA

ABSTRACT

PROBLEM: THERMAL SPRINGS ARE WIDELY DISTRIBUTED IN SOUTHWESTERN MONTANA, AND REGIONAL HEAT FLOW IS HIGHER THAN NORMAL. THERMAL WATER IS BELIEVED TO UNDERLIE AN EXTENSIVE AREA, AND IT MAY BE AN IMPORTANT RESOURCE FOR DEVELOPMENT AS GEOTHERMAL-ENERGY RESEARCH AND EXPLORATION EXPAND AND AS THERMAL WATER NOT HOT ENOUGH FOR POWER GENERATION IN OPERATING PLANTS COMES INTO WIDER USE. THE MAGNITUDE OF THIS RESOURCE, AND ITS OCCURRENCE, TEMPERATURE, AND CHEMICAL CHARACTER ARE POORLY KNOWN, AND OPTIMUM DEVELOPMENT WILL REQUIRE RATIONAL EXPLORATION AND EVALUATION.

OBJECTIVE: THE OBJECTIVES OF THE STUDY ARE TO: 1. DESCRIBE THE AREAL DISTRIBUTION DEPTH OF OCCURRENCE, TEMPERATURE, AND CHEMICAL CHARACTER OF THE THERMAL WATERS IN PART OF SOUTHWESTERN MONTANA; 2. DETERMINE THE NATURE OF THE GEOLOGIC CONTROLS ON OCCURRENCE OF THE THERMAL WATERS; AND 3. DEVELOP CONCEPTUAL MODELS OF THE HYDROTHERMAL FLOW SYSTEMS, TO PROVIDE A RATIONAL BASIS FOR APPRAISAL AND POTENTIAL DEVELOPMENT OF THE RESOURCE.

APPROACH: REVIEW LITERATURE FOR DATA ON GEOLOGY, HYDROLOGY, TEMPERATURE, HYDROCHEMISTRY, AND GEOPHYSICS; 2. INVENTORY SPRINGS AND WELLS, BOTH THERMAL AND NONTHERMAL, IN THERMAL SPRING AREAS; MEASURE TEMPERATURE, CHEMICAL CHARACTER, HEAD, AND DISCHARGE PERIODICALLY AND ANALYZE TYPICAL WATERS FOR CHEMICAL LOAD; 3. STUDY GEOLOGY, PARTICULARLY STRUCTURAL FEATURES, OF THERMAL-SPRING AREAS, TO DEVELOP CONCEPTUAL MODELS OF THE HYDROLOGICAL SYSTEM; 4. DESIGN AND CARRY OUT A PROGRAM OF TEST DRILLING TO PROVIDE CRITICAL HYDRAULIC, GEOPHYSICAL, TEMPERATURE, AND HYDROCHEMICAL INFORMATION. ITEMS 3 AND 4 WILL BE COORDINATED WITH RELATED ACTIVITIES OF OTHER INVESTIGATORS MAKING GEOLOGIC AND TEMPERATURE STUDIES. (MEO)

STUDY AFFILIATION

THIS PROJECT IS RELATED TO 'GEOTHERMAL RECONNAISSANCE OF SOUTHWESTERN MONTANA,' SERIAL NUMBER 00000382, ERIS QUARTERLY REPORT, VOLUME I, NO. 2, FEBRUARY 1976.

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00001041

PROJECT TITLE

GEOTHERMAL REGIME OF THE PACIFIC NORTHWEST BY HEAT FLOW AND MICROSEISMIC TECHNIQUES

PROJECT NUMBER

AER76-00108

INVESTIGATORS

D. O. BLACKWELL

RESEARCH INSTITUTION

SOUTHERN METHODIST UNIV., DEPT. OF GEOLOGICAL SCIENCES
HILLCREST & UNIVERSITY / DALLAS, TX 75222

PRIMARY SPONSOR

NATIONAL SCIENCE FOUNDATION

PRIMARY FUNDING AMOUNT

186,300

TIME FRAME

JUNE 1976 TO NOV. 1977

LOCATION

MT WA OR ID

ABSTRACT

THE OVERALL OBJECTIVE OF THE RESEARCH BY SOUTHERN METHODIST UNIVERSITY IS TO DEVELOP AN UP-TO-DATE UNDERSTANDING OF THE REGIONAL GEOTHERMAL REGIME OF THE PACIFIC NORTHWEST STATES. THIS WILL BE ACCOMPLISHED BY A FOCUS ON THREE SPECIFIC OBJECTIVES: 1. REDUCE AND INTERPRET AVAILABLE HEAT FLOW DATA IN THE FOUR-STATE REGION WHICH HAS NOT BEEN PREVIOUSLY PUBLISHED; 2. OBTAIN AND INTERPRET NEW HEAT FLOW AND MICROSEISMIC DATA IN CENTRAL IDAHO (THE IDAHO BATHOLITH) AND WEST MONTANA NEAR

HELENA; AND 3. SUPPORT THE INTERPRETIVE EFFORT WITH NEW CONTINUATION MODELS FOR HEAT FLOW DATA. THE LAST COMPILATION OF HEAT FLOW DATA FOR THE NORTHWESTERN U.S. WAS SIX YEARS AGO. THE AVAILABLE DATA TODAY ARE MORE ABUNDANT BY BETTER THAN AN ORDER OF MAGNITUDE. A NEW MAP WILL BE PREPARED BY THE END OF 1976. FIELD STUDIES ARE PLANNED FOR CENTRAL IDAHO BECAUSE OF A PROFUSION OF THERMAL SPRINGS AND THE SCIENTIFIC INTEREST IN THE REGION SOURCE AND DISTRIBUTION OF THE EVIDENT HEAT. STUDIES IN THE HELENA-MARYSVILLE-BROADWATER REGION OF MONTANA WILL EXPAND ON DEEP DRILLING RESULTS IN THE AREA TO DETERMINE WHETHER SURFACE THERMAL ANOMALIES ARE PRODUCED: 1. BY DEEP CIRCULATING GROUND WATER PERTURBING AN OTHERWISE NORMAL REGIONAL BACKGROUND; OR 2. BY ANOMALOUSLY HOT FORMATIONS IN THE AREA. NEW ANALYTICAL, AS WELL AS HEAT FLOW MEASUREMENT TECHNIQUES WILL BE APPLIED IN THESE STUDIES.

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00001042
PROJECT TITLE
ROCK DEFORMATION, MONTANA
PROJECT NUMBER
9550-00409
INVESTIGATORS
F. C. ROBERTSON
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
12201 SUNRISE VALLEY DR. / HERNDON, VA 22092
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
TIME FRAME
JULY 1975 TO JUNE 1976
LOCATION
MT
ABSTRACT

EXPERIMENTS ON THE MECHANICAL PROPERTIES OF SELECTED ROCK SAMPLES ARE PERFORMED UNDER PRESSURES TO 10KB AND HEATING TO 300 DEGREES C AND ON THE ELASTIC PROPERTIES OF CERTAIN ROCK AND MINERAL SAMPLES UNDER A VACUUM AND HEATING TO 1000 DEGREES C. FIELD STUDIES ARE MADE OF THE GEOTHERMAL REGIME AND OVERTHRUST FAULTING OF WESTERN MONTANA. EXPERIMENTAL RESULTS AND FIELD OBSERVATIONS ARE COMBINED IN ASSESSING SUCH PROBLEMS AS THE MECHANICS OF OVERTHRUST FAULTING, EARTHQUAKE MECHANISMS, HYDROTHERMAL WATER CIRCULATION, GEOTHERMAL ENERGY, ELASTIC PROPERTIES AND WAVE ATTENUATION IN ROCKS.

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00001043
PROJECT TITLE
TELESEISMIC AND MICROEARTHQUAKE GEOTHERMAL STUDIES
PROJECT NUMBER
9930-01172
INVESTIGATORS
H.M. IYER
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, SEISMOL. & EARTHQUAKE PRED. BR.
345 MIDDLEFIELD RD. / MENLO PARK, CA 94025
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
TIME FRAME
JULY 1975 TO JUNE 1976
LOCATION
CA WY MT
ABSTRACT

A LARGE VOLUME OF TELESEISMIC RESIDUAL DATA IS AVAILABLE FROM PERMANENT AND PORTABLE NETWORKS IN THE YELLOWSTONE AREA. WE ARE USING SEISMIC RAY-TRACING AND MATHEMATICAL INVERSION TECHNIQUES TO DELINEATE ACCURATELY THE SHAPE AND VELOCITY STRUCTURE OF THE HUGE LOW-VELOCITY BODY UNDER THE YELLOWSTONE CALDERA. PRELIMINARY RESULTS SHOW THAT THE TOP OF THE BODY IS 5-10 KM UNDER THE CALDERA, IT EXTENDS TO A DEPTH OF AT LEAST 250 KM BENEATH THE SURFACE, ITS HORIZONTAL DIMENSIONS ARE MUCH LARGER AT DEPTH THAN THE CALDERA SIZE, AND P-WAVE VELOCITY IS ABOUT 15 PERCENT LESS THAN NORMAL NEAR THE TOP OF THE BODY AND ABOUT 5 PERCENT LESS THAN NORMAL AT DEPTH. TELESEISMIC DELAYS IN THE GEYSERS-CLEAR LAKE REGION OF CALIFORNIA INDICATE THE PROBABLE PRESENCE OF A MAGNA BODY OF 1000 KM3 VOLUME TO THE NORTH OF THE GEYSERS STEAM FIELD. MICROEARTHQUAKE AND SEISMIC WAVE ATTENUATION STUDIES ARE IN PROGRESS IN YELLOWSTONE NATIONAL PARK, WYOMING, AND THE GEYERS AND COSO GEOTHERMAL AREAS, CALIFORNIA.

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00001044
PROJECT TITLE
VOLCANIC ROCKS--SNAKE RIVER PLAIN
PROJECT NUMBER
9530-00872
INVESTIGATORS
H. J. PROSTKA
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, BR. OF CENTRAL ENVIRON. GEOLOGY

BOX 25046, DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
TIME FRAME
JULY 1975 TO JUNE 1976
LOCATION
ID MT
ABSTRACT

COMPLETE AND SUBMIT PRELIMINARY MAP COMPILATION (1:250,000) OF EASTERNMOST SNAKE RIVER PLAIN EMPHASIZING CENOZOIC VOLCANIC ROCKS AND STRUCTURES, FOR USE IN TECTONIC AND GEOPHYSICAL INTERPRETATIONS AND GEOTHERMAL EXPLORATION. FIELD CHECK EDIE RANCH AND LOWER RED ROCK LAKE QUADS., AND DO ADDITIONAL MAPPING FOR 1:125,000 FINAL COMPILATION.

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0000I04S
PROJECT TITLE
MICROCRACK TECHNOLOGY FOR GEOTHERMAL EXPLORATION AND ASSESSMENT
PROJECT NUMBER
AER75-09588
INVESTIGATORS
GENE SIMMONS / MICHAEL L. BATZLE
RESEARCH INSTITUTION
M.I.T., DEPT. OF EARTH AND PLANETARY SCIENCES
CAMBRIDGE, MA 02139
PRIMARY SPONSOR
NATIONAL SCIENCE FOUNDATION, RANN
PRIMARY FUNDING AMOUNT
146,100
TIME FRAME
MAR. 1976 TO FEB. 1978
LOCATION
MT - MARYSVILLE GEOTHERMAL AREA 46 DEGREES 45' X 112 DEGRESS 22 1/2'. OTHER AREAS BEING EXAMINED INCLUDE DUNES ANOMALY, CA; RAFT RIVER, ID; BLACK ROCK DESERT, NV.
ABSTRACT

THE PURPOSE OF THIS INVESTIGATION IS TO HELP DETERMINE THE EXACT ROLE FRACTURES PLAY IN GEOTHERMAL SYSTEMS. SEVERAL GEOTHERMAL AREAS ARE BEING STUDIED AND ALL SHOW REPEATED EPISODES OF FRACTURING AND FRACTURE SEALING. THESE SYSTEMS ARE DEPENDENT ON THE FLUID CONDUCTION PATHS PROVIDED BY OPEN CRACKS. CORE SAMPLES ARE BEING EXAMINED WITH SEVERAL TECHNIQUES INCLUDING THE SCANNING ELECTRON MICROSCOPE, PETROGRAPHIC MICROSCOPE, ELECTRON MICROPROBE, DIFFERENTIAL STRAIN ANALYSIS, AND PERMEABILITY AND RESISTIVITY MEASUREMENTS. INFORMATION FROM MICROFRACTURE MORPHOLOGY, POROSITY, AND ALTERATION AND VEIN MATERIALS MAY PROVE TO BE USEFUL GUIDES IN EXPLORING FOR AND EVALUATING GEOTHERMAL AREAS AND RELATING SURFACE ANOMALIES TO PHYSICAL PROPERTIES AT DEPTH. THE MARYSVILLE GEOTHERMAL AREA IS USEFUL IN THIS STUDY BECAUSE OF THE AREA'S CHARACTERISTICS AND THE AMOUNT OF INFORMATION AVAILABLE. UNLIKE MOST GEOTHERMAL AREAS, MARYSVILLE OCCURS IN A METAMORPHIC AND INTRUSIVE IGNEOUS TERRAIN. THE MARYSVILLE SYSTEM SHOWS A STRONG DEPENDENCE ON FRACTURES. NUMEROUS REGIONAL AND LOCAL GEOPHYSICAL AND GEOLOGIC DATA AND WELL LOGS HAVE BEEN COLLECTED. FINALLY, A LARGE AMOUNT OF REPRESENTATIVE CORE SAMPLES ARE AVAILABLE. (MEO)

REPORTS AND PUBLICATIONS

M. L. BATZLE AND G. SIMMONS. MICROFRACTURES IN ROCKS FROM TWO GEOTHERMAL AREAS. EARTH PLANET. SCI. LETT., 30, 71-93. 1976.

M. L. BATZLE AND G. SIMMONS. FRACTURING AND SEALING IN GEOTHERMAL SYSTEMS. PROCEEDINGS VOLUME, NSF-RANN GEOTHERMAL CONFERENCE, GOLDEN, CO. 1976.

M. L. BATZLE AND G. SIMMONS. GEOTHERMAL SYSTEMS: ROCKS, FLUIDS, FRACTURES, IN 'THE EARTH'S CRUST: ITS NATURE AND PHYSICAL PROPERTIES,' GEOPHYS. MONOGR. SER., VOL. 20, WASHINGTON, D.C. 1977.

00001046

PROJECT TITLE

LOW IMPACT HYDRO-ELECTRIC ENERGY FOR MONTANANS

PROJECT NUMBER

RAE 53

INVESTIGATORS

BILL DELP

RESEARCH INSTITUTION

INDEPENDENT POWER DEVELOPERS, INC. / BOX 1467 / NOXON, MT 59853

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

19,885

TIME FRAME

DEC. 1976 TO DEC. 1977

LOCATION

MT - SANDERS CO.; NOXON

ABSTRACT

THE PROJECT PROPOSES TO DEMONSTRATE LOW IMPACT, COST-EFFECTIVE HYDROELECTRIC SYSTEMS. IT PROPOSES TO INSTALL SIX KW SYSTEMS IN NORTHWESTERN, MIDEASTERN, AND SOUTHWESTERN MONTANA, THEREBY PROVIDING A GENERAL ACCESSIBILITY FOR WESTERN MONTANANS WHO HAVE FLOWING WATER AS THEIR MOST ABUNDANT SOURCE OF ALTERNATIVE ENERGY. THE EXPECTED RESULT IS TO PROVIDE THREE COMPLETE 6 KW HYDRO-ELECTRIC SYSTEMS, EACH CAPABLE OF PROVIDING 17,112 KILOWATT HOURS PER YEAR. THIS PROJECT IS EXPECTED TO DEMONSTRATE THE ENVIRONMENTAL AND ECONOMIC SIGNIFICANCE OF THESE MASS-PRODUCED HYDRO-ELECTRIC POWER PLANTS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001047

PROJECT TITLE

LOW HEAD, LOW IMPACT HYDROELECTRIC ENERGY DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 603

INVESTIGATORS

BILL DELP

RESEARCH INSTITUTION

INDEPENDENT POWER DEVELOPERS, INC. / BOX 1467 / NOXON, MT 59853

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

25,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT

ABSTRACT

THE OBJECTIVE OF THIS PROJECT IS TO INSTALL 4 LOW HEAD HYDROELECTRIC SYSTEMS CAPABLE OF PRODUCING FROM 1,146 TO 2,109 KWH/MO. AT LOCATIONS TO BE CHOSEN BY THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION. PRELIMINARY RESEARCH INDICATES THAT THE NEWLY DEVELOPED FIXED PROPELLER TYPE (NAGLER) LOW HEAD HYDROTURBINES WHICH I.P.D. IS PROPOSING TO DEMONSTRATE WILL MORE THAN DOUBLE THE POTENTIAL NUMBER OF LOCALIZED POWER SITES WHICH WERE FORMERLY RESTRICTED TO HEADS OF 50 FEET OR MORE. THE SYSTEM DOES NOT REQUIRE THE USE OF A DAM, THUS MINIMIZING ENVIRONMENTAL IMPACT AS WELL AS INSTALLATION COSTS. THE ELECTRICAL APPLICATION OF THESE UNITS COULD BE UTILIZED ON FARMS, RANCHES, PARKS, REMOTE INDUSTRIAL OUTPOSTS (OIL PUMPING, MINING OPERATIONS, ETC.), VACATION RESORTS AND PRIVATE RESIDENCES. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001048
PROJECT TITLE
DEVELOPMENT AND DEMONSTRATION OF THE USE OF WOOD IN HOME HEATING
PROJECT NUMBER
RAE 40
INVESTIGATORS
ROBERT M. ZYCHEK / ROUTE 1, BOX 89A / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
1,000
TIME FRAME
MAY 1977 TO MAY 1978
LOCATION
MT - GALLATIN CO.; BOZEMAN
ABSTRACT
THIS PROJECT WILL PRIMARILY DEVELOP AND DEMONSTRATE USE OF WOOD IN HOME HEATING AND WILL CONDUCT A LIMITED AMOUNT OF RESEARCH. THE SYSTEM WILL MAKE USE OF A FIREPLACE AS AN AUXILIARY, AND POSSIBLE, AS A PRIMARY RESOURCE IN A HOME EQUIPPED WITH HOT WATER HEATING. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001049
PROJECT TITLE
SOLAR/WOOD HEATING SYSTEM
PROJECT NUMBER
RAE 45
INVESTIGATORS
CHARLESS W. FOWLKES
RESEARCH INSTITUTION
FOWLKES ENGINEERING / 1820 S. 7TH / BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
10,000
TIME FRAME
DEC. 1976 TO DEC. 1977
LOCATION
MT - GALLATIN CO.; BOZEMAN
ABSTRACT
THIS IS A PROPOSAL FOR A SOLAR HEATED RESIDENCE UTILIZING SUPPLEMENTAL WOOD HEATING TO BE BUILT IN BOZEMAN. THE HOUSE IS A PASSIVE SOLAR WALL DESIGN AND WILL BE A DEMONSTRATION PROJECT. CALCULATIONS INDICATE THAT OVER 90% OF THE HEATING LOAD OF THE HOUSE WILL BE MET BY THE SOLAR/WOOD SYSTEM. SOLAR HEATING OF THE SERVICE WATER IS ALSO INCLUDED IN THE DESIGN. THE DESIGN INCORPORATES ENERGY CONSERVING FEATURES AND ALTERNATIVE ENERGY UTILIZATION SYSTEMS. THE SOLAR WALL CONCEPT HAS BEEN REFINED TO FIT THE ENVIRONMENTAL REQUIREMENTS OF MONTANA. (SOME SOLAR DESIGNS WILL NOT WORK IN MONTANA BECAUSE OF THE EXTREME LOW TEMPERATURES.) THE PHILOSOPHY OF THE ENTIRE DESIGN HAS BEEN TO MAKE THE HOUSE AND THE ALTERNATIVE ENERGY SYSTEMS AS SIMPLE AS POSSIBLE. IT IS HOPED THAT IF THIS DESIGN IS SUCCESSFUL IT COULD BE IMITATED BY OWNERS/BUILDERS. (MEO)
STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00001050
PROJECT TITLE
TO DEMONSTRATE THE FEASIBILITY OF A SOLAR HEATED HOME THAT HAS AN INTEGRATED SYSTEM
PROJECT NUMBER
RAE 49
INVESTIGATORS
JOHN R. MEANS / ROUTE 5, PATTEE CANYON / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601.
PRIMARY FUNDING AMOUNT
4,000
TIME FRAME
DEC. 1976 TO DEC. 1977
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT
THIS PROJECT WILL ATTEMPT TO DEMONSTRATE THE FEASIBILITY OF A SOLAR-HEATED HOME WHICH HAS AN INTEGRATED SYSTEM COMBINING SOLAR WITH WOOD AND ELECTRICITY AS AUXILIARY HEATING. ANOTHER GOAL OF THIS PROJECT IS TO DEMONSTRATE

THAT A DIFFICULT ENGINEERING PROBLEM CAN BE AESTHETICALLY PLEASING AND DESIGNED TO FIT THE CHOSEN ENVIRONMENT AS WELL AS BEING EFFICIENT AND FUNCTIONAL. PERHAPS OF GREATER IMPORTANCE IS THE DEMONSTRATION THAT THE "DO IT YOURSELFER" CAN CONSTRUCT SOLAR HEATING EQUIPMENT WHICH WILL FUNCTION ADEQUATELY IN THE WESTERN PART OF MONTANA. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001051

PROJECT TITLE

INTEGRATED RENEWABLE ENERGY SYSTEM--SOLAR, WIND, AND WOOD

PROJECT NUMBER

RAE 61

INVESTIGATORS

THOMAS M. POWER / BASS CREEK COMMUNE / ROUTE 2 /
STEVENSVILLE, MT 59870

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

12,095.96

TIME FRAME

NOV. 1976 TO NOV. 1977

LOCATION

MT - RAVALLI CO.: STEVENSVILLE

ABSTRACT

THE PROJECT PROPOSES TO BUILD AN ENERGY SYSTEM APPROPRIATE FOR HOMES AND SMALL COMMERICAL BUILDINGS WHICH INTEGRATES INTO ONE SYSTEM THREE RENEWABLE ENERGY SYSTEMS: WOOD, SOLAR, AND WIND. THIS DEMONSTRATION PROJECT WILL ATTEMPT TO SHOW THAT THE OFTEN DISCUSSED PHYSICAL AND ENVIRONMENTAL LIMITATIONS ON WIND, SOLAR, AND WOOD ENERGY IN W. MONTANA ARE NEITHER UNIFORMLY APPLICABLE TO ALL SITES IN W. MONTANA NOR INSURMOUNTABLE USING CURRENT, REASONABLE, LOW-LEVEL PRACTICAL TECHNOLOGY.

WIND ENERGY, WHILE A SUBSTANTIAL RESOURCE IN E. MONTANA, HAS BEEN ASSUMED TO NOT BE A RESOURCE IN W. MONTANA. THE EVIDENCE WE HAVE GATHERED OVER 8 YEARS OF LIVING 800 FEET ABOVE A VALLEY FLOOR AT THE MOUTH OF A CANYON INDICATES THAT THERE ARE SUBSTANTIAL WIND RESOURCES AT CERTAIN LOCATIONS IN W. MONTANA. OUR PROJECT WOULD DEMONSTRATE AND DOCUMENT THIS.

STUDIES OF THE POTENTIAL FOR SOLAR ENERGY IN W. MONTANA HAVE BEEN LESS THAN OPTIMISTIC. THIS HAS BEEN DUE TO THE USE OF COSTS ASSOCIATED WITH COMMERCIAL, PREFABRICATED SOLAR WATER PANELS AND THE USE OF SOLAR INSOLATION DATA GATHERED, AGAIN, AT RECORDING STATIONS ON VALLEY FLOORS WHICH, DURING FALL, WINTER AND SPRING ARE OFTEN CLOUDED OVER BY GROUND FOG OR LOW LYING CLOUDS. BUILDING SITES OFF THE VALLEY FLOOR GET SUBSTANTIALLY MORE SUNSHINE DURING THE HEATING SEASON. THIS PROJECT WILL DEMONSTRATE AND DOCUMENT THE DIFFERENCE.

THE USE OF THE TREMENDOUS VOLUME OF CURRENTLY WASTED FOREST DEBRIS IN W. MONTANA TO PROVIDE ENERGY FOR SPACE HEATING FACES A MAJOR DRAWBACK--THE AIR POLLUTION ASSOCIATED WITH BURNING IT IN CONVENTIONAL WOOD STOVES AND HEATERS. HOWEVER, NEW WOOD BURNING FURNACES HAVE BEEN RECENTLY DEVELOPED WHICH AVOID THIS PROBLEM. SUCH A FURNACE WILL BE BUILT AND DEMONSTRATED.

ALL THREE OF THESE SOURCES OF RENEWABLE ENERGY WILL CHARGE A COMMON HEAT STORAGE SYSTEM WHICH IN TURN WILL BE DRAWN UPON TO HEAT THE BUILDING. THIS EFFECTIVELY INTEGRATES THEM INTO ONE SYSTEM WHICH IS NOT DEPENDENT UPON ONE SOURCE OF RENEWABLE ENERGY. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001052

PROJECT TITLE

THE USE OF WOOD AS A FUEL FOR HEATING A SINGLE FAMILY DWELLING USING WATER FOR HEAT DISTRIBUTION IN CONJUNCTION WITH A HEAT STORAGE UNIT

PROJECT NUMBER

RAE 74

INVESTIGATORS

S. RICHARD HAGAN / DOUG L. POLETTE

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF INDUSTRIAL EDUCATION
BOZEMAN, MT 59715

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

4,000

TIME FRAME

DEC. 1976 TO DEC. 1977

LOCATION

MT - GALLATIN CO.: BRIDGER CANYON

ABSTRACT

THE MAJOR PURPOSE OF THE PROJECT IS TO STUDY THE FEASIBILITY OF USING WOOD AS A HEAT SOURCE IN CONJUNCTION WITH A HOT WATER DISTRIBUTION SYSTEM INCORPORATING A HEAT STORAGE UNIT. THE PROJECT WILL CONSIDER HOW TO HEAT A SINGLE FAMILY DWELLING USING A WOOD FIRED FURNACE EMPHASIZING THE HOME OWNER CONVENIENCE AND MORE IMPORTANT, A REDUCTION IN THE AMOUNT OF AIR POLLUTANTS PRODUCED THROUGH WOOD COMBUSTION. CARE WILL BE TAKEN TO DEVELOP A SYSTEM WHICH IS IN THE ECONOMIC REACH OF THE AVERAGE MONTANA HOME OWNER.

THIS PROJECT CAN BE CONSIDERED BOTH DEVELOPMENTAL AND DEMONSTRATION. IT IS PLANNED THAT AN ECONOMICALLY BUILT FURNACE AND AN EFFICIENT HEAT STORAGE UNIT WILL BE DEVELOPED, AND THAT THIS EQUIPMENT WILL BE TESTED THROUGH DEMONSTRATION. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION OF THE MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601

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00001053

PROJECT TITLE

SOLAR HEATING DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 100

INVESTIGATORS

DR. PHILIP D. PALLISTER / JAYBIRD RANCH / BOULDER,
MT 59632

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

8,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - JEFFERSON CO.: BOULDER

ABSTRACT

THIS PROJECT PROPOSES TO USE SUN AND WOOD AS A RENEWABLE ENERGY SOURCE TO PROVIDE THE MAJORITY PORTION OF HEATING AND DOMESTIC HOT WATER SUPPLY OF A LARGE, WELL INSULATED RURAL HOME UTILIZING WOOD FIREPLACE BOILERS. RENEWABLE ENERGY SOURCES WHICH WILL BE UTILIZED ARE LARGELY SOLAR ENERGY TO BE COLLECTED BY HOT WATER PANELS, AND WOOD TO BE BURNED IN FIREPLACES TO HEAT WATER JACKETS. WIND ENERGY WILL BE UTILIZED AS A LIMITED ALTERNATIVE THAT MAY BE USED TO STORE EITHER ELECTRICAL OR HEAT ENERGY. SOLAR ENERGY WILL BE USED TO HEAT A GREENHOUSE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001054

PROJECT TITLE

A SOLAR AND WOOD HEAT DEMONSTRATION IN THE DENNY DRISCOLL BOYS HOME

PROJECT NUMBER

RAE 132

INVESTIGATORS

REV. J. F. FINNEGAN / DENNY DRISCOLL BOYS HOME /
BOX 3093 / BUTTE, MT 59701

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

30,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - SILVER BOW CO.; BUTTE / JEFFERSON CO.; WHITEH¬

ABSTRACT

THE BOYS HOME PROPOSES TO INSTALL A HIPPERT WOOD BURNING FURNACE AT THE MAIN DENNY DRISCOLL BOY'S HOME IN BUTTE, MONTANA, A MATERIALS CONSULTANTS, INCORPORATED (MCI) SOLAR FLAT PLATE AIR COLLECTOR TO SUPPLY HEAT FOR THE OFFICE BUILDING AND THE DAISY BRASIER HONOR COLLEGE AT THE BUTTE LOCATION, AND AN MCI COLLECTOR WITH A HIPPERT WOOD BURNING FURNACE AS A BACK-UP SYSTEM AT THE BOY'S RANCH IN WHITEHALL. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001055

PROJECT TITLE

A DEMONSTRATION INTEGRATED SOLAR SYSTEM PROJECT

PROJECT NUMBER
RAE 133
INVESTIGATORS
ANTHONY J. TERZO, JR. / 820 HILDA AVE. / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
10,000
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT

THIS PROJECT WILL DEMONSTRATE THAT THE SUN CAN BE USED AS THE MAJOR ENERGY SOURCE FOR SPACE HEATING AND COOLING AND DOMESTIC WATER HEATING WHENEVER POSSIBLE. IT WILL ALSO SHOW THAT WOOD FUEL, WHETHER AS A BACKUP SYSTEM TO A SOLAR HEATER, OR AS THE SOLE HEAT SOURCE, CAN BE USED MUCH MORE EFFICIENTLY AND CONVENIENTLY THAN IS PRESENTLY BEING DONE, AND WITH LESS POLLUTION. THE MAJOR INNOVATIVE CONCEPTS THAT WILL BE DEMONSTRATED BY THIS PROJECT ARE: 1. A HILLSIDE AIR-TYPE SOLAR COLLECTOR, LOCATED BELOW THE HEAT STORAGE BIN, WHICH TURNS ITSELF ON AND OFF AND CIRCULATES AIR BY CONVECTION. 2. A ROCK AND CONCRETE HEAT STORAGE BIN OF UNIQUE DESIGN WHICH UTILIZES THE PRINCIPLES OF CONVECTION TO STORE AND RELEASE HEAT OBTAINED FROM A FLAT PLATE SOLAR COLLECTOR AND/OR FROM A WOOD BURNING FURNACE. 3. A WOOD BURNING FURNACE WHICH INCORPORATES SELF REGULATING FEATURES WHICH MAINTAIN EFFICIENT COMBUSTION WITH MINIMUM HEAT LOSS UP THE CHIMNEY. 4. THE COMPLETE SOLAR/WOOD HOUSE HEATING SYSTEM USES THE PRINCIPLES OF CONVECTION AND IS THUS IMMUNE TO POWER FAILURES OR ENERGY SHORTAGES. 5. THE ROOFTOP, WATER TYPE, SOLAR COLLECTOR HEATS WATER FOR DOMESTIC USES AND FOR THE POOL. IT USES NO MORE ELECTRICITY THAN WOULD BE NECESSARY TO OPERATE THE POOL FILTER PUMP. 6. THE SAME ROOFTOP SOLAR COLLECTOR ALSO OPERATES AUTOMATICALLY AS AN EXHAUST FAN TO AID SUMMER COOLING USING NO ENERGY OTHER THAN SUNLIGHT. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001056
PROJECT TITLE
PASSIVE SOLAR DEMONSTRATION PROJECT
PROJECT NUMBER
RAE 134
INVESTIGATORS
JOHN DUFFIELD / ROUTE 5, PATTEE CANYON / MISSOULA, MT 59801
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
9,640
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - MISSOULA CO.; MISSOULA
ABSTRACT

THIS IS A PROJECT TO BUILD A PASSIVE SOLAR DEMONSTRATION, APPROPRIATE TO HOMES OR SMALL COMMERCIAL BUILDINGS. THE PROPOSED INTEGRATED RENEWABLE ENERGY SYSTEM WILL INCLUDE A SOLAR TROMBE WALL, CLERESTORY, INSULATING CURTAINS, INSULATION, WOOD FURNACE AND FIREPLACE, AND SOLAR WATER HEATER. WHILE THE BASIC ELEMENTS OF THIS SYSTEM HAVE BEEN SEPARATELY EXPLORED BY OTHERS, THE INTEGRATION OF SPACE AND HOT WATER HEAT AND INTERIOR ILLUMINATION IN A SINGLE SOLAR-WOOD SYSTEM IS AN INNOVATION. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SR 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001057
PROJECT TITLE
A DEMONSTRATION PROJECT OF SOLAR AND WOOD ENERGY
PROJECT NUMBER
RAE 138
INVESTIGATORS
GREGORY N. CUNNIFF / 742 - 33 B AVE., N.E. / GREAT FALLS, MT 59404
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION

PRIMARY FUNDING AMOUNT

16,850

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - CASCADE CO.; GREAT FALLS

ABSTRACT

THIS PROJECT WILL DEMONSTRATE THE FEASIBILITY OF APPLYING A RETROFIT COMBINATION OF SOLAR SPACE HEATING WITH A WOOD BACKUP AND INCORPORATING STORAGE FOR A TOTAL RENEWABLE ENERGY HEATING SYSTEM. THIS SYSTEM WILL CONSIST OF A RETROFIT SOLAR SPACE HEATING SYSTEM USING FLAT-PLATE AIR COLLECTORS AND A GRAVEL STORAGE TANK. THE ENERGY DELIVERED BY THE SOLAR SYSTEM WILL SUPPLY APPROXIMATELY 62% OF THE PRESENT HEATING DEMAND. THE WOOD SYSTEM WILL SUPPLY AN ADDITIONAL 23% BY BURNING 6 CORDS OF WOOD PER YEAR AT AN EFFICIENCY OF 40% TO YIELD APPROXIMATELY 85% OF THE TOTAL HEATING DEMAND SUPPLIED BY RENEWABLE ENERGY. THE REMAINDER OF THE HEATING DEMAND WILL BE SUPPLIED BY THE EXISTING NATURAL GAS FURNACE. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001058

PROJECT TITLE

A SOLAR AND WIND HOME HEATING SYSTEM DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 139

INVESTIGATORS

OTIS B. JOHNSON / BOX 157 / TURNER, MT 59542

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

7,000

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - BLAINE CO.; TURNER

ABSTRACT

THIS PROJECT PROPOSES TO PRODUCE A HOME THAT WILL DEMONSTRATE BOTH THE FEASIBILITY AND THE PRACTICABILITY OF USING A COMBINATION OF SOLAR HEATING AND WIND POWER GENERATED ELECTRICITY TO HEAT WATER FOR BOTH HEATING AND HOT WATER. IT IS ANTICIPATED THAT THE COMBINED SYSTEM SHOULD PRODUCE MORE THAN 75% OF THE HEAT NEEDED TO KEEP A HOME COMFORTABLE IN A COLD MONTANA WINTER. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001059

PROJECT TITLE

SOLAR, WIND AND WOOD HOME HEATING SYSTEM DEMONSTRATION PROJECT

PROJECT NUMBER

RAE 140

INVESTIGATORS

RICHARD L. DILL / ROUTE 2, BOX 50A / STEVENSVILLE, MT 59870

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

6,361

TIME FRAME

JULY 1977 TO JULY 1978

LOCATION

MT - RAVALLI CO.; STEVENSVILLE

ABSTRACT

THE PROJECT IS AN INTEGRATED SYSTEM OF SOLAR, WIND AND WOOD. WOOD IS PLENTIFUL IN THE LOCATION AND WITH PROPER FOREST MANAGEMENT SHOULD ALWAYS BE. IT IS AN IDEAL BACKUP TO SOLAR AND WIND IN THIS PART OF THE COUNTRY. SOME SPECIFIC DESIGN CONSIDERATIONS ARE: 1. TO DESIGN A SMALL EFFICIENT WELL INSULATED LIVING SPACE; 2. TO DESIGN ENERGY REQUIREMENTS TO COINCIDE WITH USE; 3. TO ORIENT THE DWELLING TO MAKE MAXIMUM USE OF EXISTING ALTERNATIVE ENERGY; 4. ARCHITECTURE SHOULD REFLECT FIRST ENERGY USAGE AND EFFICIENCY, SECONDLY AESTHETICS. (MEO)

STUDY AFFILIATION

PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS

A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001060

PROJECT TITLE
A WINDBORN SELF-SUFFICIENT SOLAR GREENHOUSE PROJECT

PROJECT NUMBER
RAE 150

INVESTIGATORS
JOHN D. BROWN / BOX 216 / CIRCLE, MT 59215

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES AND CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
12,500

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - MCCONE CO.: CIRCLE

ABSTRACT

THE WIND-BORN SELF SUFFICIENT SOLAR GREENHOUSE IS A RENEWABLE ENERGY PROJECT INTEGRATING NOT ONLY WIND AND SOLAR ENERGY BUT ALSO BIOLOGICAL PROCESSES. AS SUCH, IT ADDRESSES A VARIETY OF QUESTIONS CONCERNING GREENHOUSE DESIGN MANAGEMENT AND ENERGY BUDGETING. THE FOLLOWING POINTS WILL BE ADDRESSED: RESEARCH: 1. WHAT IS THE RELATIONSHIP BETWEEN WIND SPEED AND SOLAR INTENSITY? CAN AN INTEGRATED SYSTEM EFFECTIVELY ADDRESS THE PROBLEMS OF ENERGY VARIATION AND STORAGE? 2. TO WHAT EXTENT ARE INTERIOR CLIMATE FLUCTUATIONS CONTROLLABLE GIVEN THE ENERGY INPUTS AND CONTROL MECHANISMS SPECIFIED, AND WHAT EFFECTS WILL ALL THIS HAVE ON PLANT VIABILITY? 3. PRODUCTION OF HEAT, CO2 AND FERTILIZER WILL BE BY AEROBIC DIGESTION. THESE BY-PRODUCTS WILL BE MEASURED AND THE CHARACTERISTICS OF THEIR INTERACTIONS WITH PLANT LIFE ANALYZED. 4. ENERGY INPUTS AND REQUIREMENTS WILL BE MONITORED ON A DAILY BASIS. 5. LABOR INPUT WILL BE NOTED AND THE ECONOMIC/NET ENERGY ASPECTS TABULATED AT THE END OF THE YEAR.

DEVELOPMENT: WE INTEND TO DEVELOP AN INTEGRATED GROWING ENVIRONMENT POWERED BY: 1. DIRECT SOLAR RADIATION. HEAT WILL BE STORED PASSIVELY IN WATER CONTAINERS, EARTH AND CONCRETE. 2. WIND POWERED ELECTRICITY GENERATION. THE ELECTRICITY WILL BE UTILIZED BY WATER PUMPING WIDE SPECTRUM GROWING LIGHTS, EMERGENCY AIR EXHAUST. 3. WIND AND THERMAL POWERED AIR EXHAUST SYSTEM. 4. SOLAR FOOD DEHYDRATION. 5. SOLAR HOT WATER PRODUCTION. 6. AUXILIARY WOOD HEAT. 7. CO2 HEAT, AND FERTILIZER PRODUCTION BY AEROBIC DECOMPOSITION. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001061

PROJECT TITLE
SOLAR GREENHOUSE AND HOME HEAT RESEARCH AND DEMONSTRATION PROJECT

PROJECT NUMBER
RAE 153

INVESTIGATORS
GARY J. FRANKLIN / 4428 6TH AVE. SOUTH / GREAT FALLS, MT 59405

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT
5,000

TIME FRAME
JULY 1977 TO JULY 1978

LOCATION
MT - CASCADE CO.: GREAT FALLS

ABSTRACT

THIS PROJECT WILL CONSTRUCT A SOLAR GREENHOUSE ON THE SOUTH SIDE OF AN EXISTING HOME AND ALSO INSTALL A WOOD HEATER WHICH WILL WORK IN CONJUNCTION WITH THE GREENHOUSE IN PROVIDING HEAT FOR BOTH UNITS. THE COMBINATION OF THESE TWO INSTALLATIONS IS EXPECTED TO PROVIDE UP TO 98% OF THE SPACE HEATING REQUIREMENTS OF THE HOME DUE TO THE IDEAL CONFIGURATION OF THE HOUSE FLOOR PLAN. THE GREENHOUSE WILL ALSO PROVIDE AN ENVIRONMENT FOR THE GROWING OF FOOD ON A YEAR ROUND BASIS. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

REPORTS AND PUBLICATIONS
A FINAL REPORT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001062

PROJECT TITLE
AUTOMATIC WOOD BURNING FURNACE DEVELOPMENT AND DEMONSTRATION PROJECT

PROJECT NUMBER
RAE 301

INVESTIGATORS
BILL DELP
RESEARCH INSTITUTION
INDEPENDENT POWER DEVELOPERS, INC. / BOX 1467 /
NOXON, MT 59853
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
4,968
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - SANDERS CO.: NOXON
ABSTRACT

THIS PROJECT IS TO CONSTRUCT AND DEMONSTRATE A WOOD BURNING FURNACE AT THE I.P.D. FACTORY NEAR NOXON, MONTANA WHICH WILL EFFICIENTLY PROVIDE WINTER HEAT FOR A BUILDING HOUSING AN AREA OF 2,560 SQUARE FEET IN AN AIR SPACE OF 44,800 CUBIC FEET. THE WOOD HEATER WHICH I.P.D. PROPOSES TO BUILD AND DEMONSTRATE IS OF THE BASEMENT FURNACE VARIETY BUT ON A RESIDENTIAL SCALE. IT IS HOPED THAT THIS FURNACE CAN EQUAL OR SURPASS THE COMBUSTION EFFICIENCY OF ANY WOOD BURNER ON THE MARKET TODAY. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001063
PROJECT TITLE
MONITORING OF A COAL/WOOD FIREPLACE WATER HOME HEATING SYSTEM
PROJECT NUMBER
RAE 303
INVESTIGATORS
ALVIN G. FISCUS
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF MICROBIOLOGY
BOZEMAN, MT 59715
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
600
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - GALLATIN CO.: BOZEMAN
ABSTRACT

THIS PROJECT WILL ATTEMPT TO MAKE EXISTING FIREPLACES MORE EFFICIENT BY UTILIZING A CAST IRON STEAM RADIATOR IN THE FIREPLACE BOX AND CIRCULATING WATER THROUGH THE RADIATOR. TWO PARAMETERS WILL BE USED TO MEASURE THE EFFICIENCY OF THE SYSTEM. ONE WILL DETERMINE THE RATE OF HEAT DISSIPATION WITH ONE ZONE OPEN, RELATIVE TO TIME, OF THE BOILER TEMPERATURE WITH AND WITHOUT THE UTILIZATION OF THE ADJUNCT SYSTEM. THE SECOND WILL COMPARE THE VOLUME OF NATURAL GAS USED FOR THE PAST TWO YEARS FOR THE WEEKEND DAYS OF OCTOBER THROUGH MARCH TO THAT UTILIZED DURING THE TEST PERIOD. IT IS ANTICIPATED THAT THIS PROJECT WILL DECREASE MARKEDLY THE USAGE OF A NON-RENEWABLE FUEL, NATURAL GAS, WHICH IS IN EXTREMELY SHORT SUPPLY AND WILL RECYCLE DISCARDED CAST IRON RADIATORS. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001064
PROJECT TITLE
DOUBLE WOOD STOVE HEATING SYSTEM DEMONSTRATION PROJECT
PROJECT NUMBER
RAE 304
INVESTIGATORS
LELAND E. SMITH / 2425 CHAPARRAL ROAD / HELENA, MT 59601
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601
PRIMARY FUNDING AMOUNT
2,837
TIME FRAME
JULY 1977 TO JULY 1978
LOCATION
MT - LEWIS & CLARK CO.: HELENA
ABSTRACT

THIS PROJECT WILL INSTALL SEVERAL WOOD BURNING UNITS AND ENERGY SAVERS AS A DEMONSTRATION TO SHOW PEOPLE HOW THEY CAN HEAT WITH WOOD EFFICIENTLY. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).
REPORTS AND PUBLICATIONS
A FINAL REPORT ON THIS PROJECT WILL BE SUBMITTED TO THE

ENERGY PLANNING DIVISION, MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, HELENA, MT 59601.

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00001065

PROJECT TITLE

FEASIBILITY OF THE CONVERSION OF WHEAT AND BARLEY INTO ALCOHOL

INVESTIGATORS

DOUGLAS G. SMITH

RESEARCH INSTITUTION

MONTANA DEPT. OF COMMUNITY AFFAIRS / HELENA, MT 59601

PRIMARY SPONSOR

MONTANA DEPT. OF COMMUNITY AFFAIRS

PRIMARY FUNDING AMOUNT

4,500

TIME FRAME

APR. 1977 TO JULY 1977

LOCATION

MT

ABSTRACT

THE PURPOSE OF THIS STUDY IS TO DETERMINE THE FEASIBILITY OF THE CONVERSION OF WHEAT AND BARLEY INTO ALCOHOL, CREATING BOTH A NEW USE OF MONTANA WHEAT AND BARLEY AND A VIABLE ALTERNATIVE ENERGY SOURCE. SINCE THERE HAS ALREADY BEEN A GREAT DEAL OF STUDY ON THE CONVERSION OF GRAIN INTO ALCOHOL IN OTHER STATES, THIS PROJECT WILL CONCENTRATE ON THE ECONOMIC FEASIBILITY OF SUCH A PROCESS AND EXPLORE ALTERNATIVE METHODS OF FUNDING SUCH ACTION. IT WILL ALSO EXPLORE THE DESIRABILITY OF A PRODUCER CHECK-OFF TAX AS A METHOD OF FUNDING ANY PROPOSED CONVERSION FACILITY. IN ADDITION, THERE WILL BE COOPERATIVE EFFORTS WITH OTHER STATES INTERESTED IN THE RESEARCH DEVELOPMENT OF SUCH FACILITIES. (MEO)

00001066

PROJECT TITLE
WESTERN REGIONAL ENERGY FACILITY SITING STUDY

INVESTIGATORS
FRED A. GROSS, JR.

RESEARCH INSTITUTION
WESTERN INTERSTATE NUCLEAR BOARD / BOX 15038
LAKEWOOD, CO 80215

PRIMARY SPONSOR
U.S. NUCLEAR REGULATORY COMMISSION

SECONDARY SPONSORS
WESTERN INTERSTATE NUCLEAR BOARD

PRIMARY FUNDING AMOUNT
51,644.20

SECONDARY FUNDING AMOUNTS
11,847.86

TIME FRAME
MAY 1976 TO APR. 1977

LOCATION
AZ CA CO ID MT NV NM OR UT WA WY

ABSTRACT
THIS STUDY IS DIRECTED AT IDENTIFYING SOME OF THE EXISTING AND EMERGING ISSUES, PROBLEMS AND CONFLICTS THAT MAY ARISE IN THE PLANNING AND SITING OF ELECTRICAL ENERGY FACILITIES IN THE WINB REGION. MORE SPECIFICALLY, THE NRC CONTRACT SET OUT TWO OBJECTIVES OF THE PROJECT, TO WIT: 1. THE IDENTIFICATION AND ASSESSMENT OF CURRENT AND EMERGING ISSUES AND PROBLEMS THAT ARE PRIMARILY OF A MULTI-STATE, REGIONAL, NATURE CONCERNING THE SITING AND PLANNING OF NUCLEAR AND OTHER ELECTRICAL ENERGY FACILITIES IN THE WESTERN REGION OF THE UNITED STATES; AND 2. PREPARATION OF RECOMMENDATIONS AND ALTERNATIVE COURSES OF ACTION BY STATE, FEDERAL, AND REGIONAL AGENCIES FOR STREAMLINING THE REGULATORY AND DECISION-MAKING PROCESSES INVOLVED IN THE SITING OF NUCLEAR AND OTHER ELECTRIC ENERGY FACILITIES. (MEO)

REPORTS AND PUBLICATIONS
REGIONAL FACTORS IN PLANNING AND SITING ELECTRICAL ENERGY FACILITIES IN THE WESTERN STATES. EXECUTIVE SUMMARY, VOLUME I (BACKGROUND AND METHODOLOGY), VOLUME II (THE WESTERN SYSTEMS COORDINATING COUNCIL REGIONAL INTERCONNECTIONS, RELIABILITY, ECONOMY AND EFFICIENCY). APRIL 5, 1977, FOR THE U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF STANDARDS DEVELOPMENT, WASHINGTON, D.C. UNDER CONTRACT AT(49-24)-0249, BY THE WESTERN INTERSTATE NUCLEAR BOARD.

00001067

PROJECT TITLE

HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE (HSSR) OF THE NATIONAL URANIUM RESOURCE EVALUATION (NURE) PROGRAM

INVESTIGATORS

ROBERT R. SHARP, JR. / PAUL AAMODT / DAVE BROXTON
MERLE BUNKER / GLENN WATERBURY / RICHARD BECKMAN

RESEARCH INSTITUTION

LOS ALAMOS SCIENTIFIC LABORATORY / LOS ALAMOS, NM 87545

PRIMARY SPONSOR

U.S. ERDA

PRIMARY FUNDING AMOUNT

1,000,000

TIME FRAME

APR. 1975 TO OCT. 1980

LOCATION

NM CO AK WY - FREEMONT CO.: DUBOIS / MT - FLATHEAD CO.: KALISPELL / RAVALLI CO.: HAMILTON / BEAVERHEAD CO.: DILLON / GALLATIN CO.: BOZEMAN / ROSEBUD CO.: ASHLAND / CARTER CO.: EKALAKA / BIG HORN CO.: HARDIN / SILVER BOW CO. BUTTE / JEFFERSON CO.: BOULDER / ELK CITY

ABSTRACT

THE PURPOSE OF THE HSSR OF THE NURE PROGRAM IS TO AID IN THE EVALUATION OF THE NATION'S URANIUM RESOURCES AND IDENTIFY AREAS OF INTEREST FOR URANIUM EXPLORATION. THE LASL IS CARRYING ON RECONNAISSANCE SAMPLING OF SURFACE WATERS, GROUND WATERS, STREAM AND LAKE SEDIMENTS THROUGHOUT THE STATES OF NEW MEXICO, COLORADO, ALASKA, WYOMING, AND MONTANA. THE AVERAGE SAMPLING DENSITY IN THE STATE OF MONTANA IS ONE SAMPLE PER TEN SQUARE KILOMETERS (FOUR SQUARE MILES).

WHILE MANAGEMENT, PLANNING, SAMPLE ANALYSIS, DATA HANDLING, EVALUATION, AND REPORTING ARE DONE BY BY LASL AT LOS ALAMOS, NM, SAMPLING IS DONE BY PROFESSIONAL CONTRACTORS THROUGHOUT THE STATES INVOLVED.

IN ADDITION TO THE RECONNAISSANCE SURVEYS, STATE UNIVERSITIES ARE CONTRACTED TO STUDY THE EFFECTS OF DIFFERENT SAMPLING PROCEDURES, SEASONAL VARIATIONS, AND SAMPLING DENSITIES. THE UNIVERSITY OF MONTANA AT MISSOULA IS PRESENTLY CONDUCTING TWO SUCH PILOT SURVYES IN THE WESTERN PART OF THE STATE.

RESULTS OF THE RECONNAISSANCE AND PILOT SURVEYS WILL BE RELEASED TO THE PUBLIC AS SOON AS POSSIBLE. THE REPORTS WILL CONTAIN URANIUM CONCENTRATION OVERLAYS COVERING AREAS GENERALLY CONFORMABLE TO THE USGS 1:250,000 TOPOGRAPHIC MAP BOUNDARIES. THE MAIN PURPOSE OF THE REPORTS IS TO PRESENT DATA AND THE CONDITIONS UNDER WHICH IT WAS GATHERED. THE BULK OF DATA EVALUATION IS LEFT TO THE PRIVATE SECTOR, BUT THE DATA CAN BE USED AS AN AID IN THE EVALUATION OF URANIUM RESOURCES AND TO DELINEATE AREAS OF GREATEST INTEREST FOR URANIUM ORE EXPLORATION. (MEO)

REPORTS AND PUBLICATIONS

LASL QUARTERLY PROGRESS REPORTS FOR THE HSSR PROGRAM, AS WELL AS ALL REPORTS OF RECONNAISSANCE RESULTS, CAN BE OBTAINED THROUGH THE ERDA GRAND JUNCTION OFFICE, GRAND JUNCTION, COLORADO. REPORTS ARE NOW BEING PREPARED FOR THOSE AREAS IN WHICH SAMPLING HAS BEEN COMPLETED.

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00001068

PROJECT TITLE

IN-SITU URANIUM MINING, LONG PINES, MONTANA

INVESTIGATORS

GARY L. DUSEK / DR. R. MARTINKA / KRISTI DUBOIS

RESEARCH INSTITUTION

MONTANA DEPT. OF FISH AND GAME, ECOLOGICAL SERVICES DIV.
BOX 1123 / BAKER, MT 59313

COORDINATOR

U.S. FISH & WILDLIFE SERV.
U.S. FOREST SERVICE
MONTANA STATE UNIV., DEPT. OF BIOLOGY

PRIMARY SPONSOR

U.S. FISH & WILDLIFE SERV., OFFICE OF BIOL. SERV.

PRIMARY FUNDING AMOUNT

90,000

TIME FRAME

SEPT. 1976 TO AUG. 1979

LOCATION

MT - CARTER CO.: CUSTER NATIONAL FOREST: SIOUX DIV. LITTLE MISSOURI RIVER DRAINAGE, SOUTHEASTERN MONTANA

ABSTRACT

OBJECTIVES: 1. TO IDENTIFY CONFLICTS BETWEEN IN-SITU MINING TECHNIQUES AND WILDLIFE POPULATIONS AND DEVELOP GUIDELINES AND ALTERNATIVE METHODS FOR ELIMINATING OR REDUCING THOSE CONFLICTS; 2. TO CONDUCT STUDIES THAT WILL FURNISH ECOLOGICAL DATA NEEDED TO MONITOR THE EFFECTS OF SOLUTION MINING TECHNIQUES ON VEGETATION AND WILDLIFE RESOURCES, 3. TO UTILIZE THE LONG PINES AS A MODEL DEMONSTRATION SITE FOR RESEARCHING THE COMPATIBILITY OF WILDLIFE, VEGETATION AND SOLUTION MINING; 4. TO IDENTIFY REVEGETATION TECHNIQUES THAT MAY BE SPECIFIC FOR SOLUTION MINING OR OTHER IN-SITU PROCEDURES; 5. TO MONITOR SECONDARY IMPACTS FROM IN-SITU MINING ACTIVITIES ON WILDLIFE POPULATIONS AND DEVELOP ALTERNATIVES TO REDUCE THE IMPACTS. (MEO)

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00001069
PROJECT TITLE
ELECTROMAGNETIC PROSPECTING METHODS APPLIED TO URANIUM EXPLORATION
PROJECT NUMBER
9780-01760
INVESTIGATORS
B. D. SMITH
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046, DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
TIME FRAME
JULY 1975 TO JUNE 1976
LOCATION
WY CO TX WA
ABSTRACT

THE OVERALL OBJECTIVE OF THIS PROGRAM IS TO CONDUCT FUNDAMENTAL RESEARCH ON THE APPLICATION OF SURFACE ELECTROMAGNETIC METHODS TO PROSPECTING FOR URANIUM DEPOSITS. ADVANCES IN ELECTROMAGNETIC THEORY (NUMERICAL MODELING OF COMPLEX EARTH STRUCTURES) AND IN FIELD INSTRUMENTATION HAVE MADE DETECTION AND INTERPRETATION OF SUBTLE ANOMALIES POSSIBLE. ACCORDINGLY, THE PROJECT IS STRUCTURED TO TAKE ADVANTAGE OF THESE ADVANCES IN APPLICATIONS TO EXPLORATION FOR VARIOUS TYPES OF URANIUM DEPOSITS. THE OVERALL OBJECTIVE GIVEN ABOVE WILL BE ACCOMPLISHED THROUGH A COMBINATION OF LABORATORY WORK, FIELD SURVEYS AND COMPUTER ANALYSIS. THE RESEARCH CAN BE DIVIDED INTO FOUR MAJOR RESEARCH AREAS AS FOLLOWS: 1. DETERMINATION OF WHETHER MEANINGFUL GEOPHYSICAL ANOMALIES EXIST ON A LIMITED SCALE FOR VARIOUS GRADES AND/OR TYPES OF URANIUM DEPOSITS; 2. SIMULATED AND/OR ACTUAL EXPLORATION FOR URANIUM DEPOSITS INVOLVING MORE THAN RECONNAISSANCE EFFORTS; 3. INSTRUMENT DEVELOPMENT, TESTING AND REFINEMENT; AND 4. IMPLEMENTATION OF COMPUTER PROGRAMS FOR DATA PROCESSING AND INTERPRETATION. FOR FY-76 THE FOLLOWING MAJOR REPORTS ARE EXPECTED TO BE COMPLETED DEALING WITH THE FOLLOWING SUBJECTS OR TOPICS: 1. THE ELECTROMAGNETIC SIGNATURE OF SELECTED URANIUM DEPOSTS; 2. INVERSION OF AMT DATA; 3. INVERSION OF IP AND RESISTIVITY DATA; 4. A CONTOURING PACKAGE FOR IP DATA; AND 5. MISCELLANEOUS OPEN FILE REPORTS ON SPECIFIC SURVEY AREAS.

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00001070
PROJECT TITLE
INVESTIGATION OF URANIUM POTENTIAL OF EARLY MIDDLE PRECAMBRIAN CONGLOMERATES IN THE MEDICINE BOW RANGE AND SIERRA MADRE, SOUTHEASTERN WYOMING
INVESTIGATORS
FORREST K. ROOT / PAUL GRAFF / KARL KARLSTROM
RESEARCH INSTITUTION
WYOMING GEOLOGICAL SURVEY / BOX 3008, UNIVERSITY STATION
LARAMIE, WY 82071
COORDINATOR
UNIV. OF WYOMING, DEPT. OF GEOLOGY
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, URANIUM-THORIUM BR.
PHILLIP B. MUDGETT / BOX 25046, MAILSTOP 916 /
DENVER FEDERAL CENTER / DENVER, CO 80225
SECONDARY SPONSORS
WYOMING GEOLOGICAL SURVEY
PRIMARY FUNDING AMOUNT
36,248.50
SECONDARY FUNDING AMOUNTS
9,000
TIME FRAME
DEC. 1975 TO SEPT. 1977
LOCATION
WY - CARBON CO.; ALBANY CO.
ABSTRACT

EARLY MIDDLE PRECAMBRIAN CONGLOMERATES IN THE MEDICINE BOW RANGE AND SIERRA MADRE OF SOUTHEASTERN WYOMING ARE SIMILAR IN AGE, LITHOLOGY, AND MINERAL COMPOSITIONS TO ROCKS OF THE ELLIOT LAKE-BLIND RIVER URANIUM MINING DISTRICT OF ONTARIO, ONE OF THE PRINCIPAL URANIUM DISTRICTS ON THE NORTH AMERICAN CONTINENT. THE WYOMING ROCKS WILL BE MAPPED AND ANALYZED TO DETERMINE IF POTENTIAL FOR ECONOMIC DEPOSITS OF URANIUM EXISTS AND TO DELINEATE PRIME AREAS FOR MORE DETAILED WORK.

REPORTS AND PUBLICATIONS
W. R. MILLER, ET AL. GEOCHEMICAL AND GEOLOGICAL STUDIES OF RADIOACTIVE CONGLOMERATES OF MIDDLE PRECAMBRIAN AGE IN THE MEDICINE BOW MOUNTAINS, WYOMING. U.S.G.S. OPEN FILE REPORT 77-92. 1977.
AVAILABLE FROM GEOLOGICAL SURVEY OF WYOMING, BOX 3008, UNIVERSITY STATION, LARAMIE, WY. REFER TO USGS OFR 77-92. (XEROX COPY - $5.10.) U.S.G.S., PUBLIC INQUIRIES OFFICE, FEDERAL CENTER, DENVER, CO.

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00001071
PROJECT TITLE
GEOLOGY OF URANIUM ORES AND THEIR HOST ROCKS
PROJECT NUMBER
9440-01077
INVESTIGATORS
K. R. LUDWIG
RESEARCH INSTITUTION
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV. / BOX 25046,
DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY SPONSOR
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
TIME FRAME
JULY 1975 TO JUNE 1976
LOCATION
WY NM CO
ABSTRACT

CONFIRMATION, REFINEMENT, AND APPLICATION OF THE CONCEPTS, DEVELOP LAST FISCAL YEAR, OF THE EFFECT OF URANIUM-DAUGHTER MIGRATION ON U-PB ISOTOPE DATING OF YOUNG URANIUM ORES, ARE BEING PURSUED. SAMPLES FROM THE GAS HILLS AND CROOKS GAP URANIUM ARE TO BE ANALYZED, AND FURTHER SAMPLING WILL BE DONE IN THE COMING FIELD SEASON. POWDER RIVER BASIN DISTRICT SAMPLES MAY ALSO BE ANALYZED THIS FISCAL YEAR.

00001072
PROJECT TITLE
ENERGY DEVELOPMENT BOARD
INVESTIGATORS
ROBERT L. STROUP
RESEARCH INSTITUTION
ENERGY DEVELOPMENT BOARD / BOX 670 / HAZEN ND 58545
PRIMARY SPONSOR
U.S. ERDA
PRIMARY FUNDING AMOUNT
255.000
TIME FRAME
OCT. 1977 TO JUNE 1980
LOCATION
ND - MERCER CO.
ABSTRACT

OBJECTIVE: THE E.D.B. STAFF WILL ACT AS A LIAISON AMONG FEDERAL, STATE, REGIONAL AND LOCAL GOVERNMENTS, THE PRIVATE SECTOR AND CITIZENS FOR ENERGY DEVELOPMENT AND ENERGY CONSERVATION ISSUES AND TO PROVIDE OTHER ASSISTANCE AS REQUESTED BY LOCAL GOVERNMENTS OR DIRECTED BY THE BOARD. THE E.D.B. WILL HAVE OVERALL RESPONSIBILITY FOR DEVELOPMENT OF THE RURAL ENERGY LABORATORY. ITS STAFF AND CONSULTANTS WILL ASSIST THE BOARD IN DESIGNING AN ENERGY-CONSERVING GENERAL DEVELOPMENT PLAN AND IN DEVELOPING PRELIMINARY PROJECT PLANS FOR ENERGY CONSERVATION DEMONSTRATIONS. METHODOLOGY: TO EMPLOY SUFFICIENT STAFF TO ENABLE E.D.B. TO PROVIDE ALL POLITICAL SUBDIVISIONS WITH PLANNERS, COORDINATORS, AND OTHER TECHNICAL OR PROFESSIONAL ASSISTANCE AS REQUIRED AND REQUESTED. TO CONTRACT WITH OTHER AGENCIES AS NEEDED FOR ADDITIONAL PROFESSIONAL SERVICES. TO COORDINATE THE EFFORTS OF MERCER COUNTY INTO A CENTRALIZED EFFORT.

00001073

PROJECT TITLE
INNOVATIONS IN LAND USE MANAGEMENT

INVESTIGATORS
DR. GARY E. JOHNSON / DR. WILLIAM A. DANDO

RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, DEPT. OF GEOGRAPHY
GRAND FORKS, ND 58202

COORDINATOR
UNIV. OF NORTH DAKOTA, DIV. OF CONTINUING EDUCATION
GRAND FORKS, ND 58202

PRIMARY SPONSOR
UNIV. OF NORTH DAKOTA, DIV. OF CONTINUING EDUCATION

SECONDARY SPONSORS
TITLE I, HIGHER EDUCATION ACT OF 1965, PROGRAM IMPACT

PRIMARY FUNDING AMOUNT
22,158

SECONDARY FUNDING AMOUNTS
44,000

TIME FRAME
JAN. 1975 TO JUNE 1976

LOCATION
ND SD MN MT MO; ALSO MANITOBA, CANADA

ABSTRACT

INNOVATIONS IN LAND USE MANAGEMENT IS THE CULMINATION OF A SYMPOSIUM OF THE SAME NAME. THE REPORT CONCLUDED THE NORTH DAKOTA LAND USE PLANNING PROJECT. THE REPORT PRESENTS THE RESEARCH RESULTS OF DISTINGUISHED SCIENTISTS AND POLICY MAKERS FROM THE UPPER MIDWEST AND CANADA REGARDING LAND USE MANAGEMENT, INFORMATION SYSTEMS DEVELOPMENT, AND APPLIED REMOTE SENSING TECHNIQUES.

REPORTS AND PUBLICATIONS

DR. WILLIAM A. DANDO AND DR. GARY E. JOHNSON. INNOVATIONS IN LAND USE MANAGEMENT. UNIV. OF NORTH DAKOTA, DEPT. OF GEOGRAPHY. 1977. AVAILABLE FROM UNIV. OF NORTH DAKOTA, DIVISION OF CONTINUING EDUCATION, GRAND FORKS, NORTH DAKOTA 58202. $6.00 POSTPAID.

00001074

PROJECT TITLE
CENTER FOR INNOVATION (A DIVISION OF MERDI)

PROJECT NUMBER
RAE 82

INVESTIGATORS
CLYDE LAGRONE / JERRY PLUNKETT

RESEARCH INSTITUTION
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.,
CENTER FOR INNOVATION / BOX 3809 / BUTTE, MT 59701

PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION,
ENERGY PLANNING DIV. / HELENA, MT 59601

SECONDARY SPONSORS
OLD WEST REGIONAL COMMISSION
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.

PRIMARY FUNDING AMOUNT
100,000

SECONDARY FUNDING AMOUNTS
400,000
300,000

TIME FRAME
MAY 1977 TO CONTINUING

LOCATION
MT ND SD WY NE

ABSTRACT

THE CENTER FOR INNOVATION (A DIVISION OF MERDI) IS RESPONSIBLE FOR ASSISTING THE INVENTOR/ENTREPRENEUR WITH ANY AND ALL PHASES OF THE INNOVATION PROCESS--FROM CONCEPTION TO MARKETING--TO ENSURE THE HIGHEST QUALITY OUTCOMES FOR THE SMALLEST INVESTMENT OF FUNDS AND RESOURCES. ONE OF THE MOST IMPORTANT FUNCTIONS OF THE CFI IS HELPING THE SMALL BUSINESSMAN AND/OR INVENTOR SECURE FEDERAL, STATE, OR PRIVATE FUNDS AND OTHER FORMS OF INSTITUTIONAL SUPPORT FOR SPECIFIC PROJECTS THAT SHOW TECHNICAL PROMISE AND ECONOMIC DEVELOPMENT POTENTIAL. FURTHERMORE, THE CFI EXPECTS TO SUPPLY THE ESSENTIAL SERVICES DIRECTLY TO THE INVENTOR WITHIN HIS OR HER OWN COMMUNITY.

THE CFI WILL PROMOTE THE DEVELOPMENT AND INTRODUCTION OF ALTERNATIVE TECHNOLOGY. THE PURPOSE OF THE CENTER WILL BE TO GENERATE PROJECTS WHICH TRANSLATE INTO SMALL BUSINESS APPLICATIONS THAT PRODUCE AND MARKET NEWLY DEVELOPED TECHNOLOGY UTILIZING RENEWABLE ENERGY RESOURCES. (MEO)

STUDY AFFILIATION
PART OF THE MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM (SB 86).

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00001075

PROJECT TITLE
MONTANA SOLID WASTE MANAGEMENT PROGRAM

PROJECT NUMBER
SB 175

INVESTIGATORS
TERRANCE J. CARMODY

RESEARCH INSTITUTION
MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
HELENA, MT 59601

PRIMARY SPONSOR
MONTANA STATE GOVERNMENT

PRIMARY FUNDING AMOUNT
300,000 (PLANNING GRANT) / 2,500,000 (ORGANIZATIONAL LOANS) / TOTAL 2,800,000

TIME FRAME
JULY 1977 TO JUNE 1979

LOCATION
MT

ABSTRACT

THE 1977 MONTANA STATE LEGISLATURE ENACTED A BILL WHICH AUTHORIZES THE MONTANA STATE DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES TO CREATE A LOCAL GOVERNMENT GRANT FUND FOR THE CREATION OF A SOLID WASTE MANAGEMENT PROGRAM. THE PURPOSE OF THIS ACT IS TO ENCOURAGE THE GOOD MANAGEMENT OF SOLID WASTE AND THE CONSERVATION OF NATURAL RESOURCES THROUGH THE PROMOTION OR DEVELOPMENT OF SYSTEMS TO COLLECT, SEPARATE, RECLAIM, RECYCLE AND DISPOSE OF SOLID WASTE FOR ENERGY PRODUCTION PURPOSES WHERE ECONOMICALLY FEASIBLE AND TO PROVIDE A COORDINATED STATE SOLID WASTE AND RESOURCE RECOVERY PLAN.

REPORTS AND PUBLICATIONS
DRAFT 1977 MONTANA STATE PLAN FOR SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT, AND RESOURCE RECOVERY. PREPARED BY THE MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES SOLID WASTE MANAGEMENT BUREAU. JUNE 1977.

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00001076

PROJECT TITLE
FLATHEAD-CLARK FORK RIVER BASIN--INTERIM HYDROPOWER STUDY

INVESTIGATORS
COL. JOHN POTEAT / JOHN D. WELCH

RESEARCH INSTITUTION
U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
BOX C-3755 / SEATTLE, WA 98124

PRIMARY SPONSOR
U.S. ARMY CORPS OF ENGINEERS

PRIMARY FUNDING AMOUNT
970.000
TIME FRAME
JULY 1976 TO SEPT. 1979
LOCATION
MT - FLATHEAD AND CLARK FORK RIVER BASINS
ABSTRACT

THE U.S. ARMY CORPS OF ENGINEERS, IN RESPONSE TO CONGRESSIONAL AUTHORITY IS INVESTIGATING THE WATER RESOURCES IN THE FLATHEAD-CLARK FORK RIVER BASIN. EMPHASIS WILL BE ON HYDROPOWER PRODUCTION, WITH EVALUATION OF THE LOCAL SOCIAL, ECONOMIC, AND ENVIRONMENTAL EFFECTS A PRIMARY OBJECTIVE OF THE STUDY. INITIALLY, THE STUDY WILL INVOLVE A COMPARATIVE ANALYSIS OF HYDROPOWER SITES IN THE BASIN. THESE COMPARATIVE STUDIES, INVOLVING PRELIMINARY ECONOMIC, ENGINEERING, AND ENVIRONMENTAL EVALUATIONS, WILL LEAD TO SELECTING A PLAN FOR A MORE DETAILED EVALUATION, ALONG WITH AN IMPACT ANALYSIS OF THE PLAN. A REPORT ON THE STUDY AND ITS FINDINGS AND AN ENVIRONMENTAL IMPACT STATEMENT WILL BE PREPARED. (MEO)

REPORTS AND PUBLICATIONS

STEVEN FOSTER. FLATHEAD-CLARK FORK RIVER BASIN HYDROPOWER STUDY, PUBLIC BROCHURE, DRAFT I. SEATTLE DISTRICT, CORPS OF ENGINEERS. BOX C-3755, SEATTLE, WA 98124. MARCH 1977.

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00001077
PROJECT TITLE
MODEL MINERAL CODE
INVESTIGATORS
DEAN O. MONTEITH / ROD LANDBLOM / JOHN ROGERS
RESEARCH INSTITUTION
ROOSEVELT-CUSTER REGIONAL COUNCIL / PULVER HALL /
DICKINSON, ND 58601
PRIMARY SPONSOR
ROOSEVELT-CUSTER REGIONAL COUNCIL
TIME FRAME
MAR. 1977 TO MAY 1977
LOCATION
ND
ABSTRACT

THIS CODE WAS AN OUTGROWTH OF A CONFERENCE WHICH WAS HELD BY THE ROOSEVELT-CUSTER REGIONAL COUNCIL ON MARCH 3, 1977. THE CONFERENCE WAS A FORUM FOR LOCAL COUNTY OFFICIALS ON PROBLEMS RELATED TO MINERAL EXPLORATION AND PRODUCTION AND WAS ATTENDED BY SEVEN LOCAL COUNTY COMMISSIONS. REPRESENTATIVES OF STATE AND FEDERAL AGENCIES WERE INVOLVED IN MINERAL ACTIVITIES AS WELL AS NUMEROUS PRIVATE ENERGY CONCERNS AND LOCAL LANDOWNERS. THE FORUM FOCUSED ON PROBLEMS EXPERIENCED WITH MINERAL EXPLORATION AND DEVELOPMENT, AND POSSIBLE SOLUTIONS TO THESE PROBLEMS. ONE OF THE PROBLEMS DISCUSSED WAS THE LACK OF COMPREHENSIVE REGULATIONS REGARDING MINERAL EXPLORATION AND DEVELOPMENTS WITHIN THE REGION. THE COUNTY REPRESENTATIVES FELT IT WOULD BE BENEFICIAL TO HAVE SOME SORT OF UNIFORM BASIS BY WHICH EACH COUNTY COULD FORMULATE THEIR OWN RESPECTIVE MINERAL CODE.

THIS MODEL MINERAL CODE IS IN RESPONSE TO THE COUNTIES REQUEST TO THE REGIONAL COUNCIL. THE CODE IS A MODEL, AND AS SUCH CAN BE ACCEPTED AND ADOPTED IN TOTAL OR IN PART, OR TO BE REJECTED IN TOTAL OR IN PART AS THE INDIVIDUAL COUNTIES SO DESIRE. OBJECTIVE: TO REDUCE THE VOIDS AND PROBLEMS REGARDING MINERAL EXPLORATION AND PRODUCTION AND PROVIDE A MEANS FOR ORDERLY DEVELOPMENT WITHIN A COUNTY.

REPORTS AND PUBLICATIONS

NORTH DAKOTA CENTURY CODE. AVAILABLE FROM ROOSEVELT-CUSTER REGIONAL COUNCIL, PULVER HALL, DICKINSON, ND 58601. (NO COST FOR LIMITED ORDERS.)

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00001078
PROJECT TITLE
MINERALS EXPLORATION AND DEVELOPMENT PROBLEMS ARISING FROM PRIVATE-PRIVATE SEVERED ESTATES PROBLEMS
PROJECT NUMBER
404.1WP
INVESTIGATORS
DR. F. J. WOBBER / DR. J. WHITNEY / DR. ALBERT E. PALADINO
RESEARCH INSTITUTION
U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510
PRIMARY SPONSOR
U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510
TIME FRAME
JUNE 1977 TO JAN. 1978
LOCATION
AZ NV MT WT
ABSTRACT

SURVEY OF THE EMERGING ISSUES ASSOCIATED WITH SPLIT SURFACE AND SUBSURFACE MINERAL ESTATES DEVELOPED FROM THE PERSPECTIVE OF THE MINING INDUSTRY PROBLEMS ARISING FROM THE SEPARATION OF SURFACE AND MINERAL ESTATES WHERE BOTH ESTATES ARE OWNED BY PRIVATE INDIVIDUALS. STATES OR COUNTIES WILL BE IDENTIFIED AND INVESTIGATED. THE EFFECTS OF THE PRIVATE-PRIVATE SEVERED ESTATE PROBLEM ON NATIONAL MINERAL SUPPLY, THE MINING INDUSTRY AND PRIVATE MINERALS OWNERS WILL BE IDENTIFIED.

PARTICULAR ATTENTION WILL BE GIVEN TO HARDROCK MINERAL RESOURCES AND THE RESTRICTIONS THAT PRIVATE-PRIVATE SPLIT OWNERSHIP SITUATIONS INTRODUCE TO MINERALS EXPLORATION AND DEVELOPMENT.

STUDY AFFILIATION

PART OF 'NONFEDERAL MINERALS ACCESSIBILITY,' U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT.

REPORTS AND PUBLICATIONS

ANALYSIS OF MINERAL EXPLORATION AND DEVELOPMENT PROBLEMS ARISING FROM THE PRIVATE-PRIVATE SEVERED ESTATES PROBLEM IN THE UNITED STATES: AN INDUSTRY PERSPECTIVE #404.1WP. AVAILABLE FROM: U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, MATERIALS PROGRAM, (ATTN: F. J. WORBER), WASHINGTON, D.C. 20510.

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00001079

PROJECT TITLE

POTENTIAL HYDROELECTRIC POWER FOR STATE OWNED DAMS

INVESTIGATORS

RICHARD L. BUNDY

RESEARCH INSTITUTION

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION / HELENA, MT
TUDOR ENGINEERING CO. / SAN FRANCISCO, CA
R. C. HARLAN ASSOCIATES / SAN FRANCISCO, CA

PRIMARY SPONSOR

MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION, WATER RESOURCES DIV. / HELENA, MT 59601

PRIMARY FUNDING AMOUNT

20,000

TIME FRAME

JUNE 1977 TO DEC. 1977

LOCATION

MT - RAVALLI CO.; BROADWATER CO.; GOLDEN VALLEY CO.; AND WHEATLAND CO.

ABSTRACT

THE PURPOSE OF THIS PROJECT IS TO EXAMINE THE POTENTIAL ENGINEERING AND ECONOMIC FEASIBILITY OF THREE SMALL HYDROELECTRIC PROJECTS TO BE LOCATED AT EXISTING DAMS UNDER THE ADMINISTRATION OF MONTANA'S DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION. THE PROJECTS WERE SELECTED FROM STATISTICAL DATA ON FORTY WATER CONSERVATION PROJECTS WHICH HAD BEEN COMPILED IN A REPORT PREPARED BY THE DNRC IN MARCH 1977. SITES LOCATED ON THREE SEPARATE DRAINAGE SYSTEMS WERE SELECTED FOR REVIEW OF THEIR HYDROELECTRIC POTENTIAL. A SCHEME OF DEVELOPMENT FOR EACH SITE WAS PREPARED FOR THE PROPOSED POWER FEATURES ALONG WITH MODIFICATIONS TO THE EXISTING FACILITIES WHERE REQUIRED. AN ASSESSMENT OF THE POTENTIAL ENERGY THAT COULD BE GENERATED AT EACH SITE WAS COMPUTED BASED ON HYDROLOGICAL RECORDS AND PHYSICAL CHARACTERISTICS OF THE SITE. A COMPUTER PROGRAM, SIMULATING THE SEASONAL FLOW CHARACTERISTICS OF THE WATERSHED AND OPERATION OF THE PLANTS, WAS USED TO PERFORM THE ENERGY STUDIES. FOR THE THREE PROJECTS COMBINED, POTENTIAL GENERATION OF 105 MILLION KILOWATT-HOURS WOULD HAVE AN ESTIMATED MARKET VALUE IN EXCESS OF $2,700,000 ANNUALLY. THIS GENERATION IS THE EQUIVALENT OF UTILIZING ABOUT 60,000 TONS OF COAL IN A MODERN COAL-FIRED STEAM ELECTRIC GENERATING STATION. POTENTIAL MARKETS FOR THIS POWER WERE IDENTIFIED IN THIS STUDY AND MEANS OF DELIVERY OF THE ENERGY TO THE POWER PURCHASER. SMALL ENTITIES MAY BE DESIROUS OF OBTAINING POWER FROM THESE INSTALLATIONS WITH THE DECLINING AVAILABILITY OF POWER FROM THE GOVERNMENT PROJECTS. (MEO)

REPORTS AND PUBLICATIONS

REPORT ON POTENTIAL HYDROELECTRIC POWER FOR STATE OWNED DAMS. TUDOR ENGINEERING CO. AND MONTANA DEPT. OF NATURAL RESOURCES AND CONSERVATION. AVAILABLE FROM THE DEPT. OF NATURAL RESOURCES & CONSERVATION, OCTOBER, 1977.

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00001080

PROJECT TITLE

STRUCTURE MAPPING FROM IMAGES

PROJECT NUMBER

9790-01702

INVESTIGATORS

T. W. OFFIELD

RESEARCH INSTITUTION

U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV. / BOX 25046, DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY SPONSOR

U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.

TIME FRAME

JULY 1975 TO JUNE 1976

LOCATION

WY TX CO

ABSTRACT

IMAGE ANALYSIS, AIDED BY COMPUTER, ELECTRONIC, AND OPTICAL ENHANCEMENT TECHNIQUES, WILL BE APPLIED TO IDENTIFY POSSIBLE STRUCTURAL ELEMENTS IN WYOMING AND TEXAS URANIUM AREAS, A WYOMING COAL AREA, AND A COLORADO METAL-MINING DISTRICT. THE NATURE OF MANY OBSERVED PHOTOGEOLOGIC LINEAMENTS WILL BE DETERMINED IN THE FIELD. CONTINUED EFFORT WILL BE DEVOTED TO ENHANCEMENT METHODS IN ORDER TO DEFINE WAYS TO INCREASE THE OBJECTIVITY OF LINEAMENT MAPPING.

LOCATION-STATE INDEX

The Location-State Index contains State names, utilizing the standard two-digit abbreviations listed below.

Other location names such as counties, river basins, and geographic formations can be found in the Subject Index.

Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Guam	GU
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Maryland	MD
Massachusetts	MA
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Puerto Rico	PR
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Vermont	VT
Virginia	VA
Virgin Islands	VI
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY

AK	00000894 00001024
AZ	00000948 00001024 00001066 00001078
CA	00000963 00001024 00001043 00001045 00001066
CO	00000937 00000938 00000948 00001024 00001066 00001069 00001071 00001080
DC	00000937 00000938
FL	00000963
GX*	00000897 00000903 00000937 00000938 00000960 00000961 00000962 00000968 00000969 00000970
HI	00001024
ID	00000894 00001024 00001041 00001044 00001045 00001066
MN	00000919 00000937 00000938 00000963 00001073
MO	00001073
MT	00000892 00000893 00000894 00000895 00000898 00000899 00000901 00000902 00000904 00000905 00000906 00000907 00000908 00000909 00000910 00000911 00000912 00000913 00000917 00000918 00000919 00000920 00000921 00000922 00000923 00000924 00000925 00000926 00000927 00000929 00000930 00000931 00000932 00000933 00000937 00000938 00000939 00000940 00000943 00000944 00000945 00000946 00000947 00000948 00000949 00000955 00000963 00000964 00000965 00000966 00000967 00000968 00000969 00000970 00000971 00000972 00000974 00000977 00000978 00000979 00000980 00000981 00000982 00000983 00000984 00000985 00000986 00000987 00000988 00000989 00000990 00000991 00000992 00000993 00000994 00000995 00000996 00000997 00000998 00000999 00001000 00001001 00001002 00001003 00001004 00001005 00001006 00001007 00001008 00001009 00001010 00001011 00001012 00001013 00001014 00001015 00001016 00001017 00001018 00001019 00001020 00001021 00001022 00001023 00001024 00001025 00001026 00001027 00001028 00001029 00001030 00001031 00001032 00001033 00001034 00001035 00001037 00001038 00001039 00001040 00001041 00001042 00001043 00001044 00001045 00001046 00001047 00001048 00001049 00001050 00001051 00001052 00001053 00001054 00001055 00001056 00001057 00001058 00001059 00001060 00001061 00001062 00001063 00001064 00001065 00001066 00001068 00001073 00001074 00001075 00001076 00001078 00001079
ND	00000892 00000900 00000902 00000912 00000914 00000915 00000916 00000919 00000928 00000934 00000937 00000938 00000939 00000942 00000945 00000955 00000956 00000963 00000968 00000969 00000970 00000971 00000973 00000977 00001072 00001073 00001074 00001077
NE	00000912 00000963 00000975 00001074
NM	00000948 00001024 00001066 00001071
NV	00001024 00001045 00001066 00001078
OR	00000894 00001024 00001041 00001066
SD	00000912 00000919 00000935 00000937 00000938 00000963 00000977 00001073 00001074
TN	00000963

*GX Signifies Projects of General Applicability Not Geographically Bound to a State

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TX
                         00000963  00001069  00001080
UT
                         00000948  00000963  00001024  00001066
WA
                         00000894  00001024  00001041  00001066  00001069
WI
                         00000963  00001078
WY
                         00000894  00000896  00000897  00000898  00000902  00000912  00000919  00000920  00000936  00000937  00000938
                         00000939  00000941  00000943  00000945  00000946  00000947  00000948  00000949  00000950  00000951  00000952
                         00000953  00000954  00000957  00000958  00000959  00000963  00000968  00000969  00000970  00000971  00000972
                         00000976  00001024  00001036  00001043  00001066  00001069  00001070  00001071  00001074  00001080
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PERSONAL NAME INDEX

The Personal Name Index contains the names of the investigators, supervisors, project monitors and officers, and authors of publications for each project.

AAMODT, P.
00001067
ACORD, J.
00000908
ADAMS, S.
00000949
ALLISON, G.
00000961
ANDERSON, J.
00000982
ANDERSON, L. C.
00001019
ANTONIOLI, P. S.
00001017
ANTOSE, J.
00000927
BAKER, K. L.
00000896
BARBER, G. T.
00001009
BARCLAY, K.
00000940 00001039
BARRETT, E.
00001023

BARRETT, L.
00001020
BARSE, J. R.
00000938
BATZLE, M. L.
00001045
BECKMAN, R.
00001067
BEN-DAVID, S.
00000941
BENDER, L. D.
00000937
BERG, L.
00000964
BLACKWELL, D. D.
00001041
BLANKENNAGEL, R. K.
00000912
BOGGS, K.
00000993 00001011
BONDY, R. L.
00001079
BOURKE, R.
00000892
BOYCE, I.
00000969

BOYER. J. 00000946

BREESE. R. 00001018

BRELSFORD, O. L. 00000895 00000966 00000967

BROMENCHENK, J. 00000916

BROWN, D. L. 00000912

BROWN, J. D. 00001060

BROWN, S. 00000966

BROWNE, T. O. 00000950 00000953 00000954

BROXTON, O. 00001067

BUNKER, M. 00001067

BURCHETT, R. R. 00000975

BURNHAM, J. R. 00000894

BURROUGHS, E. 00000898

BYE, D. 00000934

CARE, L. O. 00000942

CALDWELL, M. 00001012

CARMODY, T. D. 00001075

CARROLL, R. E. 00000921 00000922 00000923

CHARLES, J. A. 00000984

CHRISTIANSEN, B. 00000929

COCHRAN, K. 00000981

COLTRANE, R. L. 00000937

COOK, J. L. 00001025

COOK, S. 00000989

COON, R. C. 00000942

COONS, J. W. 00000991
CROCKER, T. D. 00000941
CULL, C. A. 00000899
CUMMINGS-SAXTON, J. 00000962
CUNNIFF, G. N. 00001057
CUSHING, E. M. 00000912

D'ARGE, R. C. 00000897 00000941
DALE, D. 00000961
DALSTED, N. L. 00000942
DANDO, W. A. 00001073
DARBY, W. D. 00000915
DEGRAW, H. M. 00000975

DELP, B. 00000993 00001029 00001046 00001047 00001062
DILL, R. L. 00001059
DOLLHOPF, D. J. 00000899
DONALD, D. W. 00000952
DRUMHELLER, J. E. 00001021
DUBOIS, K. 00001068
DUFFIELD, J. 00001056
DUFFRYN, P. 00000970
DUSEK, G. L. 00001068
ELLIOTT, J. 00000924 00000925 00000927 00000928
EMMONS, L. F. 00000916
ERICKSON, D. 00000950
EVANS, W. 00000950

FERRIS, O.	00000907	00000908
FIELDS, R.	00001024	
FINCH, T. E.	00000968	00000971
FINNEGAN, J. F.	00001054	
FINNELL, T.	00000915	
FISCHER, G.	00000940	
FISCUS, A. G.	00001063	
FITZPATRICK, J. S.	00000947	
FOGARTY, W. J.	00001036	
FOSTER, S.	00001076	
FOWLKES, C.	00000990	00001049
FRALEY, D. W.	00000894	
FRANKLIN, G. J.	00001061	
FREY, W.	00000915	
FRINK, O.	00000914	
FRIZZELL, K.	00000961	
FRIZZELL, T. W.	00000892	00000974
GELHAUS, J.	00000932	
GILBERT, S.	00000928	
GILLETTE, J.	00000969	
GLASS, N.	00000926	00000929
GORBY, P. L.	00001015	
GOLD, R. L.	00000947	
GORSH, F.	00001014	

GRAFF, P. 00001070
GRAHAM, P. 00000933
GREEN, C. 00000980
GREEN, J. W. 00000938
GRIFFIN, K. N. 00000896
GROENEWOLD, G. 00000900
GROSS, F. A. 00001066
GROVE, M. E. 00001038
GUIMONT, A. R. 00000955
GUSTAFSON, L. 00001028
HADDOW, D. 00000932
HAGAN, S. R. 00001052
HAGEN, B. 00000929
HAINES, W. E. 00000976
HALL, W. D. 00000895
HARBRECHT, W. 00001001
HARLOW, M. 00000898
HARRIMAN, D. 00001022
HARVEY, E. F. 00000950 00000951 00000954
HAUSKNECHT, D. 00000963
HEDGES, R. 00000909
HERNDON, C. 00000982
HINDS, W. T. 00000894
HODDER, R. L. 00000899
HOFFMAN, F. 00000945
HOLLOMON, B. 00000960 00000961 00000962 00000963

HOPKINS, W. P. 00000914
HORPESTAD, A. 00000906 00000930
HORTON, D. E. 00000992
HORVATH, J. C. 00001025
HOVEN, G. E. 00000895
HOWARD, O. W. 00000999
HUNT, W. A. 00000910
HURTUBISE, R. J. 00000958 00000959
HUSBY, P. 00000927
IBRAHIM, M. A. 00000978
IYER, H. M. 00001043
JACOBS, G. 00000897
JACOBSEN, J. J. 00000894
JENKINS, H. 00000908
JENNINGS, P. W. 00000910
JENSEN, E. 00000961
JOBES, P. C. 00000944 00000946
JOHNSON, G. F. 00001073
JOHNSON, O. P. 00001058
JUERS, L. E. 00000937 00000938
KANTRUD, A. 00000919
KARLSTROM, K. 00001070
KELLY, J. F. 00001034
KILBY, W. C. 00001016
KIMBLE, R. 00000949
KING, O. 00001013

KING, R.	00000993	
KNEESE, A. V.	00000941	
KOBER, P. J.	00000964	
KONIGSBERG, J.	00001025	
KREITINGER, J.	00001008	
KROON, R. V.	00000997	
KUKAY, E.	00000967	
LAGRONE, C.	00001074	
LANDBLOM, R.	00001077	
LEATHERS, K.	00000938	
LEAVENGOOD, D.	00000996	
LEE, B.	00000942	
LEISTRITZ, F. L.	00000942	
LEO, R.	00001033	
LEONARD, A. L.	00000914	
LEONARD, R. R.	00001040	
LERSBACK, W.	00001032	
LEWIS, E. P.	00000937	
LINDBO, T.	00000916	
LUDWIG, K. R.	00001071	
MACDONALD, J. W.	00001003	
MACDONALD, L. C.	00000998	
MARGLER, L.	00000963	
MARTIN, O. H.	00000892	
MARTINKA, R.	00000933	00001068
MARTZ, M.	00000963	

MATTSON, G. 00001004
MAUGHAN, D. 00000932
MCKAY, J. 00000954
MCKINSEY, L. 00000946
MCMARTIN, W. 00000938
MCNAY, L. M. 00000895 00000969
MEANS, J. 00001050
MILLER, G. G. 00000970 00000971
MILLER, W. R. 00000912
MONTEITH, D. D. 00001077
MOORE, G. 00000917 00000927 00000928
MOORE, J. 00000928
MORGAN, W. 00000948
MOY, R. F. 00001025
MUBARAK, A. 00000902
MYERS, D. J. 00000955 00000956
NEHRING, R. 00000945
NICKLIN, M. 00000909
NORDTVEDT, K. 00000985
NUNNALLEE, D. 00000908
NYRO, J. H. 00000946
OFFIELD, T. W. 00001080
OIEN, O. N. 00001000
OLSEN, M. E. 00000894
OLSON, T. M. 00000913 00000917 00000925 00000928

ORDOFF. D. K. 00001002
ORVIS. J. A. 00001005
OWEN. G. 00000987
PALADINO. A. E. 00001078
PALLISTER. P. D. 00001053
PARKER. D. 00000972
PARKINSON. J. 00000956
PATTERSON. J. 00000936
PEAVY. H. S. 00000910
PELLETIER. T. 00000940
PETERSON. D. E. 00001006
PHILLIPS. R. 00000920
PICCAGLI. G. 00000949
PIKE. G. 00000905 00000929
PLUNKETT. J. 00001074
POLETTE. D. L. 00001052
POLZIN. P. E. 00000943 00000979
POSEWITZ. J. 00000931
POTEAT. J. 00001076
POWER. T. M. 00000939 00001051
PRICHARD. G. 00000915
PRODGERS. R. 00000924
PROSTKA. H. J. 00001044
RAISCH. P. 00000932
RASMUSSEN. J. J. 00000965
REHBEIN. J. 00000908

REICHMUTH, D. R. 00000898
RICE, D. D. 00000977
RICKS, D. 00000908
ROACH, M. D. 00000932
ROBBINS, H. 00000932
ROBERTSON, E. C. 00001042
ROBINSON, W. E. 00000976
ROGERS, J. 00001077
ROGOZEN, M. B. 00000963
ROOT, F. K. 00001070
ROSA, R. 00001030
SCHAUB, J. R. 00000938
SCHLEYER, R. J. 00000893
SCHMIDT, O. C. 00000913 00000927 00000928
SCHMIDT, V. H. 00001026 00001030
SCHULZE, W. 00000941
SCHUMACHER, R. 00000908
SCHWARTZ, D. F. 00000955
SEASHORE, J. J. 00000935
SHARP, R. K. 00001067
SHELLEY, I. R. 00001010
SHELTON, R. 00000948
SHERIDAN, R. P. 00000992

SHETTLER, C. 00000942
SILVER, H. F. 00000958
SILVERMAN, A. 00000939
SILVERMAN, H. 00000963
SIMMONS, G. 00001045
SKOLD, M. D. 00000938
SMITH, B. D. 00001069
SMITH, D. 00001036
SMITH, D. G. 00001065
SMITH, L. E. 00001064
SOUDER, P. S. 00000962
SPARLING, E. W. 00000938
SPENCER, C. W. 00000977
SPIKER, W. M. 00001037
SPRAGUE, J. 00000970
STEWART, P. 00000904
STINSON, D. L. 00000957
STINSON, T. F. 00000937
STOLTZ, M. 00000994
STREETER, R. 00000919 00000920
STROMQUIST, A. 00000915
STROUP, R. 00000939
STROUP, R. L. 00001072
SUNDRE, O. 00001073
SWEENEY, D. 00000942
SWIFT, W. H. 00000894

TAYLOR, J. 00000986
TAYLOR, J. E. 00000918
TEMPLE, K. L. 00000901
TERZO, A. J. 00001055
TOMAN, N. E. 00000942
TOMLINSON, W. H. 00000995
TRUCHOT, L. W. 00001007
TUOOR, A. 00000908
TWETON, J. 00000973
VAN VOAST, W. A. 00000909
VOELKER, S. 00000937
WALL, M. K. 00000903
WALLING, F. R. 00000914

WALTER, O. 00000896
WARNER, M. L. 00000894
WARRINGTON, R. O. 00000984
WATERBURY, G. 00001067
WEAVER, D. K. 00000983
WEBER, M. 00000911
WEBER, M. E. 00000962
WELCH, J. O. 00001076
WHARTON, J. 00000945
WHETZEL, V. 00000938
WHITING, J. 00001035
WILLIAMS, A. S. 00000946
WILLIAMS, D. C. 00000946

WOBBER, F. J. 00001078

WOODRIFF, R. 00000902

WU, W. 00000958

ZEID, H. 00000950

ZYCHEK, R. 00001048

ZYCHER, R. 00000945

ORGANIZATION INDEX

The Organization Index contains uniform names of all organizations included in the project descriptions. Government agencies listed in the Organization Index are prefaced by the organization's affiliation; for example, *South Dakota* Office of Energy Policy, and *U.S.* Bureau of Land Management, EMRIA.

ABT ASSOCIATES
00000950
ALTERNATE ENERGY RESOURCES ORGANIZATION
00000981
ATLANTIC-RICHFIELD CO.. COAL OPERATIONS DIV.
00000954
ATLANTIC-RICHFIELD CO.. ENVIRONMENTAL SERVICES
00000951
BASIN ELECTRIC POWER COOPERATIVE
00000934 00000935
BEARTOOTH COAL CO.
00000922
BELGRADE. MONTANA PUBLIC SCHOOLS. SCHOOL DISTRICT #44
00000997
BICKERT. BROWNE. CODDINGTON & ASSOCIATES. INC.
00000936 00000950 00000951 00000952 00000953 00000954
BILLINGS SHIPPING CORPORATION
00001023
BUTTE-SILVER BOW ANTI-POVERTY COUNCIL. INC.
00001014
C.T.A. ARCHITECTS/ENGINEERS
00001023
COLORADO INTERSTATE GAS
00000933
COLORADO STATE UNIV.
00000938

CROW INDIAN RESERVATION
00000918

D'APPALONIA CONSULTING ENGINEERS. INC.
00000936 00000953
DAMES & MOORE
00000970
DECKER COAL CO.
00000943
DENNY DRISCOLL BOY'S HOME
00001054
DISTRICT 11 HUMAN RESOURCES COUNCIL
00000993 00001011
DISTRICT 4 HUMAN RESOURCES COUNCIL
00001013

DRAPES ENGINEERING FIRM
00001027 00001031
ECOLOGICAL CONSULTING SERVICE
00000921 00000922 00000923
FLATHEAD DRAINAGE APC
00000908
FLUOR-UTAH. INC.
00000969

FORD FOUNDATION
00000892

FORT PECK TRIBE
00000929

FOWLKES ENGINEERING
00000990 00001049

GENERAL RESEARCH CORP.
00000962

GRUMMAN AIRCRAFT CORP.
00001036

GULF OIL, ENERGY & MINERALS DIV.
00000953

INDEPENDENT POWER DEVELOPERS, INC.
00001029 00001045 00001047 00001062

INST. FOR MANPOWER PROGRAM ANALYSIS, CONSULTATION & TRAINING
00000956

INTERNATIONAL RESEARCH & TECHNOLOGY
00000962

INTERNATIONAL SYNTHETIC RUBBER
00000964

JAMES E. TAYLOR & ASSOCIATES
00000986

LONG CONSTRUCTION CO.
00000899

M.I.T., DEPT. OF EARTH & PLANETARY SCIENCES
00001045

MERCER CO., ND ENERGY DEVELOPMENT BOARD
00001072

MINNESOTA POWER & LIGHT CO.
00000935

MONTANA AIR QUALITY BUREAU
00000929

MONTANA BUREAU OF MINES & GEOLOGY
00000909

MONTANA COLLEGE OF MINERAL SCIENCES & TECHNOLOGY
00000968 00000971 00000978 00000988 00001010

MONTANA CONFERENCE OF THE UNITED CHURCH OF CHRIST
00001009

MONTANA DEPT. OF COMMUNITY AFFAIRS
00001065

MONTANA DEPT. OF FISH AND GAME
00000904 00000908 00000929 00000933

MONTANA DEPT. OF FISH AND GAME, ECOLOGICAL SERVICES DIV.
00000931 00001068

MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
00000906 00000908 00000929 00000930 00000932 00001075

```
MONTANA DEPT. OF LIVESTOCK
                00000917
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
                00000907  00000908  00000924  00000929  00000947  00000980  00000981  00000982  00000983  00000984  00000985
                00000986  00000987  00000988  00000989  00000990  00000991  00000992  00000993  00000994  00000995  00000996
                00000997  00000998  00000999  00001000  00001001  00001002  00001003  00001004  00001005  00001006  00001007
                00001008  00001009  00001010  00001011  00001012  00001013  00001014  00001015  00001016  00001017  00001018
                00001019  00001020  00001021  00001022  00001026  00001027  00001028  00001029  00001030  00001031  00001032
                00001033  00001034  00001035  00001037  00001038  00001039  00001046  00001047  00001048  00001049  00001050
                00001051  00001052  00001053  00001054  00001055  00001056  00001057  00001058  00001059  00001060  00001061
                00001062  00001063  00001064  00001074  00001079
MONTANA DEPT. OF STATE LANDS
                00000927  00000943  00000946  00000947

MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
                00000895  00000940  00000965  00000966  00000967  00001039  00001074

MONTANA ENERGY OFFICE
                00000929  00000978  00001025
MONTANA ENVIRONMENTAL QUALITY COUNCIL
                00000892  00000893  00000974
MONTANA POWER CO.
                00000899
MONTANA SCHOOL DISTRICT #3 AND 3 B
                00001032

MONTANA STATE GOVERNMENT
                00000932  00001075
MONTANA STATE UNIV.
                00000910  00000937  00000939
MONTANA STATE UNIV., AG. EXP. STATION
                00000899  00000944
MONTANA STATE UNIV., DEPT. OF ANIMAL & RANGE SCIENCES
                00000918
MONTANA STATE UNIV., DEPT. OF CHEMICAL ENG.
                00000964
MONTANA STATE UNIV., DEPT. OF CHEMISTRY
                00000902
MONTANA STATE UNIV., DEPT. OF CIVIL ENG.
                00000898  00000910
MONTANA STATE UNIV., DEPT. OF INDUSTRIAL EDUCATION
                00001052
MONTANA STATE UNIV., DEPT. OF MECHANICAL ENGINEERING
                00000984
MONTANA STATE UNIV., DEPT. OF MICROBIOLOGY
                00000901  00001063
MONTANA STATE UNIV., DEPT. OF PHYSICS
                00000985  00001021  00001026  00001030
MONTANA STATE UNIV., DEPT. OF SOCIOLOGY
                00000944
MONTANA STATE UNIV., ELECTRONICS RESEARCH LAB.
                00001020  00001033
```

MONTANA WATER QUALITY BUREAU
00000929
MONTANA-DAKOTA UTILITIES
00000935
NATIONAL BIOCENTRIC, INC.
00000934
NATIONAL COAL BOARD OF GREAT BRITAIN
00000970
NATIONAL SCIENCE FOUNDATION
00000945 00001041
NATIONAL SCIENCE FOUNDATION, DIV. ADV. EN. RESOURCES RES.
00000897
NATIONAL SCIENCE FOUNDATION, RANN
00000911 00000939 00001045
NORTH DAKOTA GEOLOGICAL SURVEY
00000900
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
00000942 00000973
NORTH DAKOTA STATE UNIV.
00000937 00000938
NORTH DAKOTA STATE UNIV., INST. FOR REGIONAL STUDIES
00000942
NORTH DAKOTA STATE WATER COMMISSION
00000914

NORTHERN CHEYENNE INDIAN RESERVATION
00000918
NORTHWESTERN PUBLIC SERVICE CO.
00000935
OLD WEST REGIONAL COMMISSION
00000895 00000914 00000915 00000916 00000942 00001036 00001074
OLSON-ELLIOTT & ASSOCIATES
00000913 00000917 00000924 00000925 00000927
OTTER TAIL POWER CO.
00000935
PEABODY COAL CO.
00000921
PHOTO SCIENCE, INC.
00000972
R. C. HARLAN ASSOCIATES
00001079
ROCKY MOUNTAIN ENERGY CO.
00000952
ROOSEVELT-CUSTER REGIONAL COUNCIL
00001077
SASKATCHEWAN POWER CORP.
00000893 00000904 00000929 00000930
SCIENCE APPLICATIONS, INC.
00000963
SHELL OIL CO.
00000946

SHELL OIL CORP.. WESTECH
00000913
SHERIDAN ENTERPRISES. INC.
00000936
SOLAR PLANNING OFFICE-WEST
00001024 00001025
SOUTHERN METHODIST UNIV.. DEPT. OF GEOLOGICAL SCIENCES
00001041
SPILDIE CONSTRUCTION
00001023
STEARNS-ROGER. INC.
00000934
THE MEADOWLARK GROUP
00000946
THE RAND CORPORATION
00000945
TUDOR ENGINEERING CO.
00001079
U.S. ARMY CORPS OF ENGINEERS
00001076
U.S. ARMY CORPS OF ENGINEERS. SEATTLE DIV.
00001076
U.S. BUREAU OF INDIAN AFFAIRS
00000918 00000925
U.S. BUREAU OF LAND MANAGEMENT
00000914 00000915 00000916 00000923 00000942 00000950

U.S. BUREAU OF LAND MANAGEMENT. DIV. OF RESOURCES
00000928
U.S. BUREAU OF LAND MANAGEMENT. EMRIA
00000909
U.S. BUREAU OF MINES
00000900 00000903 00000968
U.S. BUREAU OF MINES. SPOKANE MINING RESEARCH CENTER
00000899 00000969 00000970 00000971
U.S. BUREAU OF RECLAMATION
00000933
U.S. CONGRESS. OFFICE OF TECHNOLOGY ASSESSMENT
00000960 00000961 00000962 00000963 00001078
U.S. DEPT. OF AG.. ECONOMIC DEVELOPMENT DIV.
00000937
U.S. DEPT. OF AG.. ECONOMIC RESEARCH SERVICE
00000937 00000938 00000946
U.S. DEPT. OF AGRICULTURE. COOP. STATE RESEARCH SERVICE
00000944
U.S. DEPT. OF COMMERCE. ECONOMIC DEVELOPMENT ADMIN.
00000955 00001074
U.S. DEPT. OF ENERGY. DIV. OF SOLAR ENERGY
00001024 00001025
U.S. DEPT. OF HEALTH. EDUCATION AND WELFARE
00000957
U.S. EPA
00000901 00000902 00000904 00000905 00000906 00000907 00000910 00000929 00000930 00000931 00000932
00000937 00000938 00000941

U.S. EPA. CORVALLIS NAT. ENV. RESEARCH CENTER
00000926 00000929
U.S. EPA. ENVIRONMENTAL MONITORING & SUPPORT LAB
00000929
U.S. ERDA
00000958 00000965 00000977
U.S. ERDA. BATTELLE PACIFIC NW LAB.
00000894 00000949
U.S. ERDA. DIV. OF BIOMEDICAL & ENVIRONMENTAL RESEARCH
00000894
U.S. ERDA. DIV. OF OIL, GAS & SHALE TECHNOLOGY
00000976
U.S. ERDA. DIV. OF SOLAR ENERGY
00001023
U.S. ERDA. LARAMIE ENERGY RESEARCH CENTER
00000959 00000976
U.S. ERDA. MHD DIV. OF FOSSIL ENERGY
00000940 00000966 00000967
U.S. FEDERAL ENERGY ADMINISTRATION
00000978 00000979
U.S. FISH & WILDLIFE SERV.
00001068
U.S. FISH & WILDLIFE SERV.. NO. PRAIRIE WILDLIFE RES. CTR.
00000919
U.S. FISH & WILDLIFE SERV.. OFFICE OF BIOL. SERV.
00001068
U.S. FISH & WILDLIFE SERV.. SHERIDAN FIELD STATION
00000920
U.S. FISH & WILDLIFE SERV.. WELUT
00000919 00000920 00000972
U.S. FOREST SERVICE
00001068
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
00000898
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
00000898
U.S. GEOLOGICAL SURVEY
00000915
U.S. GEOLOGICAL SURVEY, BR. OF CENTRAL ENVIRON. GEOLOGY
00001044
U.S. GEOLOGICAL SURVEY, CONSERVATION DIV.
00000975
U.S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
00000977 00001042 00001043 00001044 00001069 00001071 00001080
U.S. GEOLOGICAL SURVEY, SEISMOL. & EARTHQUAKE PRED. BR.
00001043
U.S. GEOLOGICAL SURVEY, URANIUM-THORIUM BR.
00001070
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
00000905 00000909 00000912 00000929 00001040

U.S. NUCLEAR REGULATORY COMMISSION
00001066

UNITED TRIBES EDUCATIONAL TECHNICAL CENTER
00000955 00000956
UNIV. OF ARIZONA
00000903
UNIV. OF MINNESOTA
00000937
UNIV. OF MONTANA
00000916 00000939
UNIV. OF MONTANA. BUREAU OF BUSINESS & ECONOMIC RESEARCH
00000943 00000979
UNIV. OF MONTANA, DEPT. OF BOTANY
00000992
UNIV. OF MONTANA, DEPT. OF GEOLOGY
00000911
UNIV. OF MONTANA, INST. FOR SOCIAL SCI. RESEARCH
00000947
UNIV. OF NEW MEXICO
00000941
UNIV. OF NORTH DAKOTA, DEPT. OF GEOGRAPHY
00001073
UNIV. OF NORTH DAKOTA, DEPT. OF HISTORY
00000973
UNIV. OF NORTH DAKOTA, DIV. OF CONTINUING EDUCATION
00001073

UNIV. OF NORTH DAKOTA, INTERNATIONAL CONGRESS HEADQUARTERS
00000903
UNIV. OF TULSA, NATIONAL ENERGY LAW & POLICY INST.
00000961
UNIV. OF WYOMING
00000896 00000941 00000948
UNIV. OF WYOMING, CENTER FOR GOVERNMENT RESEARCH
00000896
UNIV. OF WYOMING, DEPT. OF CHEMISTRY
00000958 00000959
UNIV. OF WYOMING, DEPT. OF ECONOMICS
00000897 00000941 00000948
UNIV. OF WYOMING, DEPT. OF GEOLOGY
00001070
UNIV. OF WYOMING, DEPT. OF MECHANICAL ENG.
00001036
UNIV. OF WYOMING, DEPT. OF MINERAL ENGINEERING
00000957 00000958
UNIV. OF WYOMING, INSTITUTE FOR POLICY RESEARCH
00000896 00000948 00000949
WESTERN INTERSTATE NUCLEAR BOARD
00001066

WHEELABRATOR-FRYE. INC.
00000935

WYOMING GEOLOGICAL SURVEY. GEOLOGIC DIV.
00001070

SUBJECT INDEX

The terms listed in the Subject Index are taken from thesauri of energy descriptors and supplemented by terms from the title and abstract of the project description.

In addition, the Subject Index contains location names such as cities, counties, mine sites, river basins, and geographic formations. State location names can be found in the Location Index.

ADAMS CO., ND
00000928

AERIAL PHOTOGRAPHY
00000918 00000923 00000928

AGRICULTURAL LAND USE
00000893 00000926 00001065

AGRICULTURE
00000892 00000893 00000903 00000907 00000926 00000938 00000943 00001036 00001065

AIR POLLUTION
00000918 00000926 00000929 00000930 00000932 00000963

AIR QUALITY
00000894 00000918 00000926 00000929 00000930 00000932 00000934 00000967

ALBANY CO., WY
00000941 00000958 00000959 00001036 00001070

ALHAMBRA, MT
00001040

ALMONT, ND
00000942

ALTERNATE ENERGY
00000895 00000939 00000980 00000981 00000982 00000983 00000984 00000985 00000986 00000987 00000988
00000989 00000990 00000991 00000992 00000993 00000994 00000995 00000996 00000997 00000998 00000999
00001000 00001001 00001002 00001003 00001004 00001005 00001006 00001007 00001008 00001009 00001010
00001011 00001012 00001013 00001014 00001015 00001016 00001017 00001018 00001019 00001020 00001021
00001022 00001023 00001024 00001025 00001026 00001027 00001028 00001029 00001030 00001031 00001032
00001033 00001034 00001035 00001036 00001037 00001038 00001039 00001040 00001041 00001042 00001043
00001044 00001045 00001046 00001047 00001048 00001049 00001050 00001051 00001052 00001053 00001054
00001055 00001056 00001057 00001058 00001059 00001060 00001061 00001062 00001063 00001064 00001065
00001074

ALTERNATIVE STUDIES
00000938 00000963 00000974

ANACONDA, MT
00000932

ANTELOPE VALLEY STATION
00000934

AQUATIC ECOSYSTEMS
00000895 00000906 00000913 00000922 00000923 00000931 00000934

AQUATIC ENVIRONMENT
00000911 00000913

AQUIFERS
00000905

ARCHAEOLOGICAL SITES
00000973

ARLEE, MT
00000982

ASHLAND, MT
00001067

ASPHALTENES
00000958

ATTITUDE SURVEYS
00000896 00000947 00000952 00000956 00000961 00000962 00000974

BARNES CO., ND
00000973

BARSTOW, CA
00000963

BASELINE DATA
00000895 00000900 00000904 00000905 00000916 00000918 00000924 00000925 00000926 00000927 00000929
00000930 00000933 00000940 00000950 00000952 00000953 00000954 00000962 00000967 00001036 00001068

BEAVERHEAD CO., MT
00000990 00001067

BECKER, MN
00000963

BELFIELD, ND
00000942

BELGRADE, MT
00000997

BENSON CO., ND
00000973

BEULAH, ND
00000942

BIG HORN CO., MT
00000913 00000932 00000943 00000944 00000946 00000949 00001067

BIG SKY MINE
00000921

BIGHORN BASIN
00000963

BILLINGS CO., ND
00000928

BILLINGS, MT
00000932 00000979 00000990 00000991 00001023

BIOENVIRONMENT
00000919 00000929

BIOMASS
00000980

BIRDS
00000919

BIRNEY, MT
00000927

BISMARCK, ND
00000942

BLACK ROCK DESERT, NV
00001045

BLACK THUNDER MINE
00000951

BLAINE CO., MT
00001058

BLIND RIVER, ONTARIO
00001070

BOOM TOWNS
00000937 00000952

BOTTINEAU CO., ND
00000973

BOULDER BATHOLITH
00001067

BOULDER, MT
00001053 00001067

BOUNDARY WATFRS TREATY
00000893

BOWMAN CO., ND
00000928

BOZEMAN, MT
00000983 00000984 00000985 00000990 00000996 00001004 00001005 00001015 00001020 00001021 00001030
00001033 00001048 00001049 00001063 00001067

BRIDGER CANYON, MT
00001052

BROADWATER CO., MT
00001079

BROADWATER HOT SPRINGS, MT
00001037

BROADWATER, MT
00001041

BROPHY MINE
00000922

BROWNING, MT
00000990

BUILDING DESIGN
00000984

BULL MOUNTAINS COAL FIELD
00000909

BURLEIGH CO., ND
00000914 00000915 00000916 00000928 00000942

BUTTE, MT
00000932 00000940 00000965 00000967 00000990 00001010 00001014 00001017 00001039 00001054 00001067

BUTTE, ND
00000942

BYPRODUCTS
00000903 00000939

CABIN CREEK, B.C.
00000908

CAMPBELL CO., WY
00000949 00000951 00000953 00000954

CANADA
00000893 00000906 00000907 00000919 00000929 00000930 00000931 00000974 00000978 00001070 00001073

CARBON CO., MT
00000922

CARBON CO., WY
00000950 00000952 00001070

CARTER CO., MT
00001067 00001068

CASCADE CO., MT
00000990 00000995 00000998 00001007 00001016 00001027 00001031 00001032 00001057 00001061

CASCADE, MT
00001032

CASS CO., ND
00000973

CAVALIER CO., ND
00000973

CENTER, ND
00000942

CHEMICAL ANALYSIS
00000958

CHEMICAL PROPERTIES
00000902 00000954

CHOUTEAU CO., MT
00001024

CIRCLE WEST PROJECT
00000917 00000924

CIRCLE, MT
00001060

CLASSIFICATION SYSTEMS
00000919 00000924 00000961 00000972

CLEAR LAKE, CA
00001043

CLIMATOLOGY
00000918 00000934 00000967

COAL
00000893 00000894 00000898 00000899 00000900 00000901 00000902 00000904 00000905 00000906 00000907
00000908 00000909 00000910 00000911 00000912 00000913 00000915 00000918 00000920 00000921 00000922
00000930 00000931 00000932 00000933 00000934 00000935 00000936 00000938 00000939 00000943 00000944
00000945 00000946 00000947 00000948 00000950 00000951 00000952 00000953 00000954 00000957 00000958
00000960 00000961 00000962 00000963 00000964 00000965 00000968 00000969 00000970 00000971 00001080

COAL CREEK COAL MINE
00000954

COAL EXTRACTION
00000920 00000968 00000969 00000970 00000971

COAL LIQUEFACTION
00000958

COAL MINES
00000915 00000921 00000922 00000934 00000936 00000950 00000952 00000953

COAL MINING
00000898 00000901 00000905 00000909 00000912 00000913 00000918 00000920 00000927 00000937 00000938
00000943 00000960 00000961 00000969

COAL OUTCROP MAPS
00000923

COAL RESERVES
00000961

COAL SEAMS
00000969 00000971

COAL SEVERANCE TAXES
00000948

COAL TRANSPORT
00000910 00000960 00000961 00000962 00000963

COLOR INFRARED PHOTOGRAPHY
00000917 00000928

COLSTRIP, MT
00000899 00000921 00000925 00000932 00000944 00000963 00000990

COLUMBIA FALLS, MT
00000932

COMMUNITY SERVICES
00000947

COMPONENT DEVELOPMENT AND INTEGRATION FACILITY (CDIF)
00000940

COMPUTER MODELS
00000895 00000898 00000906 00000918 00000968

COMPUTER PROGRAMS
00000988

CONRAD, MT
00001000 00001012

CONVERSE CO., WY
00000949

CORONACH, SASKATCHEWAN, CANADA
00000906 00000929

COST ANALYSIS
00000974

COST EFFECTIVENESS
00000903 00000960 00000962 00000968 00000976 00001002

COTEAU MINE
00000934

COYOTE GENERATING STATION
00000934

CROOK GAP URANIUM AREA
00001071

CROP PLANTS
00001065

CRUDE OIL SUPPLY
00000979

CUSTER CO., MT
00000990

CUT BANK, MT
00001028

DALLAS, TX
00000963

DAMS
00001079

DANIELS CO., MT
00000929

DAWSON CO., MT
00000990 00000994 00000999

DAYTON, MT
00001035

DECISION MAKING
00000892 00000897 00000938 00000941

DECKER MINE
00000947

DECKER, MT
00000947

DEER LODGE CO., MT
00000932 00001039

DEMOGRAPHY
00000894 00000896 00000942 00000944 00000954

DICKEY CO., ND
00000973

DILLON, MT
00000990 00001067

DISTILLATE FUELS
00000964

DODGE, ND
00000942

DRAGLINES
00000969 00000970

DRAINAGE
00000913 00001079

DRY SCRUBBING
00000935

DUBOIS, WY
00001067

DUNES ANOMALY, CA
00001045

DUNN CENTER, ND
00000942

DUNN CO., ND
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EAST DECKER MINE
00000943

EAST HELENA, MT
00000932

EAST POPLAR RIVER
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ECONOMIC ANALYSIS
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ECONOMIC DEVELOPMENT
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ECONOMIC FEASIBILITY
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ECONOMIC GROWTH
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ECONOMIC IMPACT
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ECONOMIC MODELS
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ECONOMIC PROJECTIONS
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ECOSYSTEM CLASSIFICATION
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EDDY CO., ND
00000973

EDIE RANCH QUADRANGLE
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EKALAKA, MT
00001067

ELECTRIC POWER
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ELECTRIC POWERPLANTS
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ELECTROCATALYSTS
00000965

ELECTROLYTES
00000965

ELECTROMAGNETIC SURVEYS
00001069

ELECTROSTATIC PRECIPITATION
00000935

ELK CITY, MT
00001067

ELLIOT LAKE, ONTARIO
00001070

EMISSIONS
00000932

EMRIA
00000909

ENERGY CONSERVATION
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ENERGY CONSUMPTION
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ENERGY CONVERSION
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ENERGY DEMAND
00000977

ENERGY DEVELOPMENT
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ENERGY POLICY
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ENERGY SUPPLY
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ENERGY SUPPLY & DEMAND
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ENGINEERING TEST FACILITY
00000966

ENVIRONMENTAL IMPACT
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ENVIRONMENTAL IMPACT STATEMENTS
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EROSION
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EXTRACTIVE DISTILLATION
00000964

FALKIRK, ND
00000942

FALSE COLOR INFRARED PHOTOGRAPHY
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FERGUS CO., MT
00000990
FISH POPULATIONS
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FISHERIES
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FLASHER, ND
00000942
FLAT PLATE COLLECTORS
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FLATHEAD CO., MT
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FLATHEAD LAKE
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FLATHEAD RIVER
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FLATHEAD-CLARK FORK RIVER BASIN
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FORECASTING
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FOREST ECOSYSTEMS
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FOREST RESOURCES
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FORT UNION BASIN
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FOSTER CO., ND
00000973
FRACTURING
00001045
FREMONT CO., WY
00001067
FT. LAUDERDALE, FL
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FT. WORTH, TX
00000963
FUEL CELLS
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FURBEARERS
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GALLATIN CO., MT
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GARRISON, ND
00000942
GAS
00000959
GAS HILLS URANIUM AREA
00001071

GASIFICATION
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GASOHOL
00001065
GEOCHEMICAL INVESTIGATIONS
00000976
GEOCHEMISTRY
00000976

GEOLOGIC INVESTIGATIONS
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GEOLOGIC SURVEYS
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GEOPHYSICAL MAPPING
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GEOPHYSICAL SURVEYS
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GEOTHERMAL ENERGY
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GEOTHERMAL EXPLORATION
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GEOTHERMAL HEATING
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GEOTHERMAL RESOURCES
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GILLETTE, WY
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GLACIER CO., MT
00000990 00001028
GLASGOW AIR FORCE BASE
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GLASGOW ENERGY PARK
00000895
GLASGOW, MT
00000990

GLEN ULLIN, ND
00000942
GLENDIVE, MT
00000990 00000994 00000999
GOLDEN VALLEY CO., MT
00001079
GOLDEN VALLEY, ND
00000942

GOVERNMENT POLICIES
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GRADUATE TRAINEESHIP PROGRAM
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GRAND FORKS CO., ND
00000973
GRASSLAND ECOSYSTEMS
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GREAT FALLS, MT
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GREEN RIVER FORMATION
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GREENHOUSES
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GRIGGS CO., ND
00000973

GROUND SUBSIDENCE
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GROUNDWATER
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GROUNDWATER RECHARGE
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GROWTH MANAGEMENT
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HALLIDAY, ND
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HAMILTON, MT
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HARDIN, MT
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HARLOWTON, MT
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HAVRE, MT
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HAZEN, ND
00000942
HEALTH EFFECTS
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HEAT FLOW
00001041
HEBRON, ND
00000942

HELENA, MT
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HETEROCYCLIC COMPOUNDS
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HETTINGER CO., ND
00000928
HIGHWOOD, MT
00001024
HILL CO., MT
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HOUSING
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HURON, SD
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HYDROCARBONS
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HYDROELECTRIC POWER
00001079

HYDROELECTRIC POWER GENERATION
00001047

HYDROELECTRIC POWERPLANTS
00001046

HYDROGENATION
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HYDROGRAPHY
00000911

HYDROLOGY
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HYDROPOWER
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HYDROTURBINES
00001047

IDAHO BATHOLITH
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IMPACT ASSESSMENT METHODOLOGY
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IN-SITU MINING
00001068

INDIAN HEAD MINE
00000900

INDIAN LABOR FORCE INFORMATION
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INDIAN LIGNITE MANPOWER PROJECT
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INDIAN RESERVATIONS
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INDUSTRIAL ENERGY CONSUMPTION
00000974

INDUSTRIAL LAND USE
00000893

INFORMATION SYSTEMS
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INSECTS
00000925

INTERSTATE COMMERCE ACT
00000961

INVERTERS
00001026

IRRIGATION
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JEFFERSON CO., MT
00001053 00001054 00001067

JOCKO HOLLOW ALTERNATIVE ENERGY EFFORT
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JOHNSON CO., WY
00000945

KALISPELL, MT
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KIDDER CO., ND
0000973

KILLDEER, ND
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LAKE CO., MT
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LAMOURE CO., ND
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LAND RESOURCES
00000938

LAND USE
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LAND USE MAPPING
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LAND USE PLANNING
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LARAMIE, WY
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LEACHING
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LEGAL ASPECTS
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LEGISLATION
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LELAND OLDS STATION
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LEWIS & CLARK CO., MT
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LEWISTOWN, MT
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LIBBY, MT
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LIGNITE
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LIMNOLOGY
00000934

LINCOLN CO., MT
00000990 00001034
LINCOLN CO., WY
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LINCOLN, MT
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LIQUID CHROMATOGRAPHY
00000959
LOCAL GOVERNMENT
00000952 00000961 00001072 00001077
LOGAN CO., ND
00000973
LONG PINES, MT
00001068
LOWER RED ROCK LAKE QUADRANGLE
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MADISON AQUIFER
00000912

MADISON FORMATION
00000963

MADISON LIMESTONE
00000912

MAGNETOHYDRODYNAMIC GENERATORS
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MAGNETOHYDRODYNAMICS
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MANDAN, ND
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MANPOWER REQUIREMENTS
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MANPOWER SURVEYS
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MAPPING
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MARYSVILLE, MT
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MAX, ND
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MCCONE CO., MT
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MCINTOSH CO., ND
00000973

MCKAY COAL SEAM
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MCLEAN CO., ND
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MEAGHER CO., MT
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MEDICINE BOW RANGE
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MERCER CO., ND
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MERCER, ND
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METEOROLOGICAL DATA
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METHANE
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METHODOLOGY
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MHD
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MHD STEAM PLANTS
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MICROBIOLOGY
00000901

MILES CITY, MT
00000950

MINE HAUL ROADS
00000898

MINERAL DEVELOPMENT
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MINERAL OWNERSHIP
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MINERAL RESOURCES
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MINERAL RIGHTS
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MINERALS EXPLORATION
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MINING ENGINEERING
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MINING EQUIPMENT
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MINING METHODOLOGY
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MINING SYSTEMS
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MISSOULA CO., MT
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MISSOULA, MT
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MISSOURI RIVER BASIN
00000914

MOBILE FACILITIES
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MODELS
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MONITORING
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MONTANA RENEWABLE ALTERNATIVE ENERGY PROGRAM
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MORTON CO., ND 00000914 00000915 00000916 00000928 00000942

MUSSELSHELL CO., MT
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NAHCOLITE
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NATIONAL URANIUM RESOURCE EVALUATION PROGRAM
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NATURAL GAS
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NATURAL GAS EXPLORATION
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NATURAL GAS RESERVES
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NATURAL RESOURCES
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NELSON CO., ND
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NITROGEN
00000958
NOISE POLLUTION
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NORTH DAKOTA LAND USE PLANNING PROJECT
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NORTHERN CHEYENNE INDIAN RESERVATION
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NORTHERN GREAT PLAINS
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NOXON, MT
00001046 00001062
NUCLEAR ENERGY
00001066
NUCLEAR POWER PLANTS
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OIL
00000979
OIL RECOVERY
00000978

OILSHALE
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OILSHALE CONVERSION
00000976
OILSHALE PRODUCTS
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OLIVER CO., ND
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OPEN PIT MINING
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OVERBURDEN
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OVERBURDEN CHARACTERISTICS
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OVERBURDEN HANDLING
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PARTICULATES
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PEARL MINE
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PEMBINA CO., ND
00000973

PETROLEUM
00000975

PHOTOINTERPRETATION
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PHYSIOCHEMICAL PROPERTIES
00000899

PICK CITY, ND
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PIERCE CO., ND
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PIPELINES
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PLANNING
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PLANT ECOLOGY
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POLICY DEVELOPMENT
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POLICY ISSUES
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POLSON, MT
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PONDERA CO., MT
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PONDEROSA PINE
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POPLAR RIVER
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POPULATION GROWTH
00000937 00000944

POPULATION PROJECTIONS
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PORTAGE, WI
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POWDER RIVER BASIN
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POWDER RIVER CO., MT
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PRAIRIE DOGS
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PREMINING STUDIES
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PRICE, UT
00000963

PUBLIC SERVICES
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RADIOS
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RAFT RIVER, ID
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RAIL TRANSPORT
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RAILROADS
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RAMSEY CO., ND
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RANSOM CO., ND
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RAVALLI CO., MT
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RAWLINS, WY
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RECLAMATION
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RECREATION
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RED LODGE, MT
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REFINERIES
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REFINING
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REGAN, ND
00000942

REGIONAL ANALYSIS
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REGULATIONS
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REMOTE SENSING
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RENEWABLE ENERGY RESOURCES
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RENNER BAY, ND
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RENVILLE CO., ND
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RESEARCH AND DEVELOPMENT
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RESEARCH ASSESSMENT
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RESERVOIRS
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RESOURCE INVENTORY
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RESOURCE TAXATION
00000948

RETORING
00000959

REVEGETATION
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RICHLAND CO., ND
00000973

ROLETTE CO., ND
00000973

ROSEBUD CO., MT
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ROSEBUD MINE
00000899

ROUNDUP, MT
00000909

RUNOFF
00000904

RURAL DEVELOPMENT
00000938 00000946

RURAL ENERGY LABORATORY
00001072

RUSO, ND
00000942

SANDERS CO., MT
00001046 00001062

SANDSTONES
00000977

SARGENT CO., ND
00000973

SCOBEY, MT
00000929

SCRUBBERS
00000935

SEDIMENTS
00000977

SEPARATION PROCESSES
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SHALE OIL
00000959

SHERIDAN CO., ND
00000973

SHERIDAN CO., WY
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SHERIDAN, WY
00000943 00000947

SHRUBLANDS
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SIERRA MADRE RANGE
00001070
SILVER BOW CO., MT
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SIMULATION MODELS
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SITING STUDIES
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SLOPE CO., ND
00000928

SLURRIES
00000910 00000963
SLURRY PIPELINES
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SMALL MAMMALS
00000917
SNAKE RIVER PLAIN
00001044

SOCIAL IMPACT ASSESSMENT
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SOCIOECONOMIC IMPACT
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SOIL ANALYSIS
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SOIL PROFILES
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SOLAR COLLECTORS
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SOLAR HEATING
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00001053 00001054 00001055 00001056 00001057 00001058 00001059 00001060 00001061
SOLAR PANELS
00001020
SOLAR RADIATION
00001021

SOLID WASTE DISPOSAL
00001075

SOLID WASTES
00001075

SOLUTION MINING
00001068

SOLVENT PROPERTIES
00000958

SOLVENT REFINED COAL
00000958

SPACE HEATING
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SPAWNING HABITATS
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SPOILS
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SPOILS CHARACTERISTICS
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ST. IGNATIUS, MT
00001022

STACK EMISSIONS
00000935

STANTON, ND
00000934 00000942

STARK CO., ND
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STEAM-ELECTRIC GENERATORS
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STEELE CO., ND
00000973

STEVENSVILLE, MT
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STRATIGRAPHY
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STREAMFLOW
00000912

STRIP MINING
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STUTZMAN CO., ND
00000973

SUBSURFACE OWNERSHIP
00001078

SULFATES
00000932

SULFUR
00000925

SULFUR DIOXIDE
00000916 00000932 00000935

SULFUR DIOXIDE REMOVAL
00000935

SURFACE CONFIGURATIONS 00000900
SURFACE MINING 00000903 00000906 00000954 00000971
SURFACE OWNERSHIP 00001078
SURFACE WATER 00000905 00000912 00000929 00000961 00001067
SWEET GRASS CO.. MT 00001009
SWEETWATER CO.. WY 00000949 00000950
SYNTHETIC NATURAL GAS 00000974

TAMPA. FL 00000963
TAR SANDS 00000959
TECHNOLOGY ASSESSMENT 00000938 00000960 00000961 00000962 00001024 00001025 00001074
TECHNOLOGY ASSISTANCE 00001074
TECHNOLOGY TRANSFER 00001074
TERRESTRIAL ECOSYSTEMS 00000923 00000934
THE GEYSERS. CA 00001043
THERMAL INSULATION 00000987 00000998
THERMAL WATERS 00001040
THIN-LAYER CHROMATOGRAPHY 00000959
THREE FORKS. MT 00001008
TONGUE RIVER 00000913 00000927
TOPOGRAPHIC FEATURES 00000934
TOPOGRAPHY 00000915 00000930 00000934
TOWNER CO.. ND 00000973
TRACE ELEMENTS 00000902 00000932
TRACY CITY. TN 00000963
TRAILL CO.. ND 00000973

TRANSMISSION LINES
00000934

TRANSPORT PROPERTIES
00000910

TRANSPORTATION SYSTEMS
00000960 00000961 00000962

TURNER, MT
00001058

TURTLE LAKE, ND
00000942

UINTA CO., WY
00000950

UNDERGROUND MINING
00000922

UNDERWOOD, ND
00000942

UNIT TRAINS
00000963

UPPER FLATHEAD RIVER BASIN
00000908

URANIUM
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VALLEY CO., MT
00000895 00000990

VALUES CONFLICTS
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VEGETATION
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VEGETATION EFFECTS
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VEGETATION TYPES
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VIGIL NETWORKS
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WALSH CO., ND
00000973

WARD CO., ND
00000973

WARM SPRINGS, MT
00001039

WASHBURN, ND
00000942

WATER ALLOCATION
00000907 00000933

WATER ALLOCATIONS
00000912

WATER ANALYSIS
00000901 00000910

WATER CHEMISTRY
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WATER CONSUMPTION
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WATER DEMAND
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WATER DISCHARGE
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WATER FLOW
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WATER POLLUTION
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WATER QUALITY
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WATER RECHARGE
00000912

WATER RESOURCES
00000894 00000904 00000905 00000906 00000907 00000908 00000909 00000910 00000911 00000912 00000913
00000914 00000938 00000961 00001076

WATER RIGHTS
00000893 00000961

WATER SUPPLY
00000907 00000908 00000912

WATER USE
00000903 00000904 00000907 00000912 00000929 00000938 00000960 00000963

WATER UTILIZATION
00000907

WATER WELLS
00000912

WELCH 1 MINE
00000936

WEST POPLAR RIVER
00000904

WEST YELLOWSTONE, MT
00000990

WESTERN ENERGY SHOW
00000981

WETLAND ECOSYSTEMS
00000928

WHEATLAND CO., MT
00000990 00001079

WHITE SULPHUR SPRINGS, MT
00001038

WHITEFISH, MT
00001018

WHITEHALL, MT
00001054

WIBAUX CO., MT
00000923

WIBAUX, MT
00000923

WILDCAT COAL MINE
00000953

WILDLIFE
00000895 00000903 00000917 00000920 00000922 00000931 00001068

WILDLIFE HABITATS
00000917 00000920 00000922 00000928 00000931 00001068

WILLS CO., ND
00000973

WILTON, ND
00000942

WIND ELECTRIC GENERATORS
00000981 00001026 00001029 00001030 00001031 00001032 00001033 00001034 00001036 00001058 00001060

WIND ENERGY
00000980 00000981 00000983 00001026 00001027 00001028 00001029 00001030 00001031 00001032 00001033
00001034 00001035 00001036 00001051 00001053 00001058 00001059 00001060

WIND ENERGY CONVERSION SYSTEM (WECS)
00001036

WIND TURBINES
00001036

WIND VELOCITY
00001036

WINDMILLS
00001026 00001028 00001035

WING, ND
00000942

WOOD HEATING
00000983 00001003 00001008 00001048 00001049 00001050 00001051 00001052 00001053 00001054 00001055
00001056 00001057 00001059 00001060 00001061 00001062 00001063 00001064

WOODLANDS
00000928

YELLOWSTONE CO., MT
00000932 00000944 00000990 00000991 00001023

YELLOWSTONE GEOTHERMAL REGION
00001043

YELLOWSTONE RIVER
00000933

YOUNG'S CREEK, MT
00000913

ZAP, ND
00000900 00000942